THE IMPACT OF VIDEO GAME ADDICTION ON DEPRESSION, ANXIETY, AND STRESS AMONG THAI ADOLESCENTS, MEDIATED BY SELF-REGULATION AND SOCIAL SUPPORT

Mr. Warin Rujataronjai

A Thesis Submitted in Partial Fulfillment of
The Requirements for the Degree of

MASTER OF SCIENCE IN COUNSELING PSYCHOLOGY

Graduate School of Psychology
ASSUMPTION UNIVERSITY
Thailand
2014

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WARIN RUJATARONJAI

JULY 2014

The present study was designed to examine the direct and indirect influences of video game addiction on Thai adolescents' levels of depression, anxiety, and stress being mediated by self-regulation and social support.

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ABSTRACT

The primary purpose of this study was to examine the direct and indirect influences of video game addiction on Thai adolescents' levels of depression, anxiety, and stress, being mediated by self-regulation and social support. To meet the objectives of the study, this research utilized the quantitative approach in which path analysis via regression analysis was employed to test the hypothesized path model. A total of 200 Thai adolescents (aged between 18 and 20 years) participated in this study by filling in a self-administered survey questionnaire designed to measure the study's primary variables (video game addiction, depression, anxiety, stress, self-regulation, and social support). Results from the path analysis showed that the respondents' level of video game addiction directly influenced the levels of depression, anxiety, and stress such that the higher the level of video game addiction, the higher is their level of depression, anxiety, and stress. Video game addiction has indirect influences on the levels of depression, anxiety, and stress when mediated by self-regulation. However, video game addiction has no indirect influence on anxiety and stress when mediated by social support. Nonetheless, video game addiction was found to have a positive influence on social support, such that the higher the level of addiction, the higher is the level of social support. Among the three dependent variables of depression, anxiety, and stress, it was found that only depression decreases in level when the mediator social support is increased, even when the level of video game addiction is high. The study's conclusions, implications, and avenues for future research are discussed.

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W. R.

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CHAPTER I

Introduction

Background of the Study

Since the late 20th century, the world has experienced a new era of technology. Today, innovations in all aspects of technology have spread faster than ever before, especially video games that have become increasingly popular devices for relaxation in many households. According to the Entertainment Software Association (2012), 72% of American households play computer or video games and 55% of gamers also play games on other mobile devices such as phones or handheld devices. As competition in the video game market is very high and since video games have grown into a billion-dollar business, many games were designed to give the greatest fun and excitement for players. Unfortunately, some design and content of the game can cause video game addiction, according to Seay, Fleming, and Kraut (2007). By the same token, Arnesen (2010) stated that with video games becoming easier to own, very enjoyable, and getting more familiar in people's lives, they can be addictive. Spending too much time playing video games can result in many negative aspects of life from psychological (e.g., depression, loneliness, escape from reality) (Gordon, 2011), interpersonal (e.g., social phobias, social avoidance) to poor performance on academics and work (Wan & Chiou, 2006). Furthermore, video game addiction is known to lower self-control (Langley, 2010).

Video game addiction is one of the emerging topics in psychology that has aroused the interest of many Western researchers (e.g., Gentile, 2009; Lemmens, Holst, Valkenburg, Peter, & Goudriaan, 2010; Cole & Griffiths, 2007; King, Delfabbro, & Griffiths, 2010). In Thailand (the setting of the current study), it had been demonstrated that children and adolescents have shown increasing signs of game-playing habit and the

risk of video game addiction (Phuphaibul et al., 2005). Therefore, it is important for people concerned with the promotion of mental health to understand video game playing and its impact on Thai youth.

According to the Thai Department of Mental Health, there are 2.5 million video game addicted children out of a population of 18 million children in the country, and the number of addicted children has been growing constantly from 13.3% in the year 2007 to 14.4% in the year 2012 (Manager.co.th, 2013). According to the same news article, there are approximately nine percent pathological gamers in primary school and junior high school, almost twice the number in the past three years. Nowadays, students prefer playing video games in their free time to other activities such as sports or reading books. Researchers found that spending too much time playing video games causes many problems: i.e., physical (e.g., lack of sleep, eyesight problem); psychological (e.g., stress, depression, anxiety); and social (e.g., low grades, skipping classes, stealing money, social avoidance, family problems, domestic violence) (Junmukda & Natirutthakorn, 2007; Sota, 2011). Since video game addiction is the cause of many problems, the current researcher attempted to examine its impact on Thai adolescents and investigate its direct influence on certain psychological states.

Although not all children who play video games are addicted, still, many children find it hard to stop playing when they should be doing their homework or other important chores. Video games give so much fun and enjoyment, making players engage in the game much longer. They lose track of time and do not really care about negative consequences as a result of their behavior (Seay et al., 2007). *Self-regulation* is, thus, very important for children, especially students, to empower them to monitor their playing behavior, spend appropriate time playing, and be able to stop before negative impact occurs. To cope with potential video game addiction, the process should begin within one's self in order to

control game playing effectively. People who surround pathological gamers including parents, teachers, and friends are also affected by the addiction, according to Junmukda and Natirutthakorn (2007). However, they are in a better position to supervise and set up interventions such as monitoring and/or controlling the length of playing time. To a large extent, they are an excellent source of *social support* to help reduce or avoid video game addiction in children and adolescents. The current study also attempted to investigate the indirect influence of video game addiction on some psychological states, with self-regulation and social support as mediating variables.

There is adequate research evidence that children who spend much time playing video games have a high chance of becoming pathological gamers and are likely to become depressed, anxious, or develop social phobias (Gordon, 2011). Young and Rodgers (1998) found that level of *depression* may increase according to the level of Internet addiction as well as online video addiction. Gentile and associates (2011) argued that children who have depression may become pathological gamers because they try to cope with depression by playing video games, and that more video gaming can cause more depression. On a different issue, Lo, Wang, and Fang (2005) demonstrated that the more time children spend on playing video games, the higher their level of social *anxiety*. Similarly, Loton (2012) found that people who spend more than 33 hours a week playing video games suffer 15% more anxiety than those who play for only 21 hours. With regard to another psychological state, researchers found that in some circumstances, video games may be used as a tool to cope with *stress* (Wood & Griffiths, 2007; King & Delfabbro, 2009). Additionally, when an individual is faced with some difficult situation in everyday life and the individual finds it hard to cope, that individual may turn to video game playing to distract oneself from facing problems or escape from reality. Sota (2011) argued that video gaming can, sometimes, be the cause of stress; that is, when trying to overcome

challenges in the game, when losing and taunted by other players, or when unable to play video games, affected individuals experience stress. Other negative consequences of game addiction include poor academic performance, failure to do homework, and problems with family members (Lo et al., 2005). According to the Illinois Institute for Addiction Recovery (2012), pathological players may try to avoid normal social relationships and play video games to develop online relations as a substitute in order to hide feelings of anger, depression, and low self-esteem. Furthermore, these pathological players need support and understanding from parents, teachers, and friends to help them adjust to society and develop healthy normal relationships. Considering the findings of the above-cited related studies, the present researcher posited that video game addiction is linked to the psychological states of depression, anxiety, and stress. In light of this position, the overriding aim of the current study was to examine the impact of video game addiction on depression, anxiety, and stress among Thai adolescents, being mediated by self-regulation and social support.

Statement of the Problem

While there have been a number of researches done on video game addiction in the West, there is, however, a scarcity of research on the same topic within the Thai context. Past research had demonstrated that video game addiction is linked to certain psychological states but these were conducted separately. The current study attempted to take a fresh approach. Given the limitation in terms of Thai perspectives, this research examined the influence of video game addiction on depression, anxiety, and stress among Thai adolescents, being mediated by self-regulation and social support. There is adequate research supporting self-regulation as a factor linked to video game addiction (e.g., Seay et al., 2007; Gentile et al., 2011; Lemmens et al., 2010). In the same vein, social support had

been associated with pathological video game play (e.g., Junmukda & Natirutthakorn, 2007); however, the two variables have not been examined together. Hence, this current study would serve as an additional knowledge resource. Moreover, Thailand being a collectivistic society means that social support is very important for well-being. Additionally, it can help prevent depression, anxiety, and stress especially among adolescents, according to Clark (2005). Adolescence is an important period in life as it is the time when young people search for their unique identity and social acceptance (Tiwari & Ruhela, 2012). It is the beginning of the transition from high school to university, from being a teenager to young adult, and from dependence to independence.

Objectives of the Study

The objectives of the current study are as follows:

1. To investigate the prevalence of video game addiction among Thai adolescents.
2. To determine the level of video game addiction, depression, anxiety, stress, self-regulation, and social support among Thai adolescents.
3. To examine the direct influence of video game addiction on the level of depression, anxiety, and stress among Thai adolescents.
4. To examine the indirect influence of video game addiction on the level of depression, anxiety, and stress among Thai adolescents, being mediated by self-regulation and social support.

Significance of the Study

As a student of counseling psychology, the present researcher has developed great interest in pathological video gaming, among other interesting behavior patterns. And as an individual who grew up in modern Thailand, this researcher has always been aware of

the negative influence of extreme computer games as highlighted by mass media, parents, and teachers. An underlying motivation for this study is that, if the negative impacts of video game addiction on the youth were objectively investigated and highlighted, the resulting findings, insights, and implications would benefit young people, parents, teachers, and society at large. Helping professionals and policy makers in the mental health service would have empirical bases for the creation and implementation of intervention strategies to help reduce the incidence of video game addiction as well as to help vulnerable children and adolescents empower themselves against the ill-effects of excessive and extreme computer usage, especially in this day and age. More specifically, the results of this study would help raise the awareness of concerned individuals on the dangers of video game addiction in order that they may take precautionary measures or undertake preventative action. The outcomes and discussions may prove beneficial to school counselors and administrators in further understanding the direct and indirect influence of video game addiction on certain psychological states among the youth. The implications of this study in terms of the role played by social support and self-regulation would have profound significance. If social support and/or self-regulation have mediating effects, then concerned individuals and groups should endeavor to take corresponding action aimed at reducing or preventing the incidence of video game addiction. Additionally, other researchers interested in the same or similar variables can use this study as a reference and database resource in terms of theoretical perspectives as well as practical information, with a view to taking the study further to a higher level of psychological investigation.

Definition of Terms

Adolescent.

'Adolescent' (as used in this study) refers to an individual aged between 18 and 20 years. Today's adolescents have high involvement with video games and might have high risk for video game addiction (Van Rooij, 2011). Adolescence is an extremely challenging and complex transition for young individuals; it is the period when one is trying to discover one's identity (Young, 2009).

Anxiety.

'Anxiety' is a general term for a psychological condition characterized by nervousness, fear, apprehension, and worry. Anxiety affects how we feel and behave and can be manifested with real physical symptoms (Medical News Today, 2012). In this study, anxiety was measured by means of the *Depression, Anxiety, and Stress Scale,* developed by Lovibond and Lovibond (1995).

Depression.

'Depression' is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration (World Health Organization, 2012). In a state of depression, the individual is slowed down in speech and body movements, unable to act or make decisions, and has lost the will to do anything. Depression may affect relationships, family, and work. It is more than sadness; it may cause insomnia or excessive sleeping, weight loss or gain, pleasure loss, inability to concentrate, excessive guilt, or suicidal thoughts (Tiwari & Ruhela, 2012). In this study, depression was measured by means of the *Depression, Anxiety, and Stress Scale,* developed by Lovibond and Lovibond (1995).

Self-regulation.

'Self-regulation' is interchangeable with self-control; it refers to the ability to control one's desire to respond and bring this to such standards as ideals, values, morals, and social expectations, and to support the pursuit of long-term goals (Baumeister, Vohs, & Tice, 2007). Alternatively, self-regulation is the individual's management of his/her own behavior through self-monitoring or self-evaluation against perceived standards, and self-administration of these behavioral consequences (Seay et al., 2007). In this study, self-regulation was measured by means of the *Self-Regulation Questionnaire*, developed by Brown, Miller, and Lawendowski (1999). Operationally, self-regulation is the ability to develop, implement, and flexibly maintain planned behavior in order to achieve one's goals.

Social support.

'Social support' refers to tangible and intangible resources available to someone through his/her relationships with other people (Longman, O'Connor, & Obst, 2009). It may come from different sources such as family, friends, teachers, and community or any social groups to which one is affiliated. It can also refer to tangible resources provided by others which may come in the form of appraisal of different situations, effective coping strategies, and emotional support (Yasin & Dzulkifi, 2010). In this study, social support was measured by means of the *Social Provisions Scale*, developed by Cutrona and Russell (1987) to assess the provisions of social relationships.

Stress.

'Stress' is anything that poses a challenge or threat to one's well-being. It can be any interaction between an individual and his/her environment, and it can be challenging or threatening, whether that individual can cope with it or not (Medical News Today,

2009). In this study, stress was measured by means of the *Depression, Anxiety, and Stress Scale,* developed by Lovibond and Lovibond (1995).

Video game.

'Video game' is a term that includes all kinds of electronic games that are played on a computer or a stationary or portable game device, excluding all forms of gambling (Arnesen, 2010). Video games are traditionally categorized into personal computer (PC) and video game 'console' systems that are played by box-shaped devices and standardized game cartridges or compact disc. Most console video games are designed to be played with a television set, except the small handheld devices such as *Game Boy* or *Nintendo DS* (Van Rooij, Schoenmakers, Meerkerk, & Van De Mheen, 2009).

Video game addiction.

'Video game addiction' refers to the excessive and compulsive use of computers or video games that results in social and/or emotional problems; despite these problems, the gamer is unable to control this excessive use (Lemmens, Valkenburg, & Peter, 2009). Problematic gaming occurs when video games dominate and displace other behaviors which lead to conflict or cause anxiety when unable to play (Seay et al., 2007). In this study, video game addiction was measured by means of the *Game Addiction Scale for Adolescents*, developed by Lemmens, Valkenburg, and Peter (2009).

CHAPTER II

Literature Review

This chapter consists of supporting theoretical perspectives as well as related research findings pertaining to the main variables of the study, namely: video game addiction, depression, anxiety, stress, self-regulation, and social support. In order to present a coherent review of related literature, the variables are presented and reviewed in the same order as the foregoing. Additional segments highlight the findings of related studies on the relationships among the core variables.

Based on the review of literature and related research findings, the current study's conceptual framework was formulated to show the direction of the study and is depicted towards the end of the chapter, followed by the research questions and, finally, by the corresponding research hypotheses which were subsequently tested to meet the objectives of this study.

Video Game Addiction

'Video game' comprises all kinds of electronic games played on a computer (Arnesen, 2010) or, alternatively, stationary and portable game devices or mobile devices such as mobile phones that can run video games (Van Rooij, 2011). Video game includes both console and Internet/computer video games. Console video games include *Nintendo, Sony Playstation, Microsoft Xbox,* and others. While they can be played alone, console video games, nowadays, can be connected to the Internet and play online multiplayer mode with other online players. 'Internet video games' refers to computer games played online in a community setting with other players via provided servers, and focus on interaction between players (Chan & Rabinowitz, 2006). Presently, console games and portable games

can be played online with other players via an Internet network, in much the same way as computer/Internet games, although they differ in platform. Arnesen (2010) opined that with video games becoming easier to own, very enjoyable, and getting more familiar in people's lives, they can be quite addicted. In the same vein, Seay et al. (2007) stated that the design and content of the game can cause video game addiction.

'Video game addiction' is the term used by many researchers to describe excessive, obsessive, compulsive and, generally, problematic use of video games. For example, Van Rooij (2011) defined video game addiction as loss of control over gaming leading to significant harm. Lemmens et al. (2009) referred to game addiction as excessive and compulsive use of computer or videogames that results in social and/or emotional problems; and, despite these problems, the gamer is unable to control this excessive use. By the same token, Weinstein (2010) stated that computer or video game addiction is the excessive or compulsive use of computers and video games that interferes with daily life. Gamers may play excessively and isolate themselves from social life and focus only on in-game rewards. According to Gentile (2009), addicted behavior does not mean that the person merely does something a lot, but it has to cause negative consequences in some aspects such as family, social, school, or work, physically or psychologically. Van Rooij and associates (2010) suggested that the difference between addicted heavy gamers and non-addicted heavy gamers is their psychosocial health; i.e., addicted heavy gamers tend to score higher on depressive mood, social anxiety, loneliness, and negative self-esteem than other gamers. Seay et al. (2007) asserted that video game addiction is that condition where gamers are unable to resist the need to play video games and cannot stop the problematic gaming behavior, regardless of whatever negative impacts may occur.

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Antecedents of video game addiction.

People play video games for many reasons such as relaxation, competence, escape from concerns, freedom or, when playing video games, players can develop a 'flow' state in which they feel fun and enjoyment, get a sense of control, and lose track of time (Gentile, 2009). By the same token, Wan and Chiou (2006) reported that the main reasons people play video games are for entertainment, relaxation, emotional coping, escape from reality, satisfying interpersonal and social needs, need for reward and achievement, need for challenge and excitement, and need for power or sense of control. Moreover, players are considered addicted only if the behavior caused negative consequences in life. There have been studies that based screening for pathological video game or Internet use on the *Diagnostic and Statistical Manual of Mental Disorders* (DSM 4th edition) criteria for pathological gambling (e.g., Griffiths, 2008; Gentile et al., 2011). Langley (2010) pointed out that there is a correlation between video game addiction, lack of self-control, depression, and social avoidance. According to King (2009), video game playing is considered 'excessive' when it creates adverse personal and social consequences in a person's life. Some people use video games as a coping method to psychological problems such as depression or anxiety. This may be the reason why not all people who spend excessive time on video games become pathological gamers (King et al., 2010). A related research involving adolescents suggested that psychological dysfunctions such as social incompetence, low self-esteem, and social isolation were significant predictors of pathological gaming because social gaming is easier than real world society and playing video games is a means of escape from social interaction (Lemmens, Valkenburg, & Peter, 2011). Addicted playing behavior may also be facilitated by the design and content of the games. Kenneth (2007) believes that video game companies design the games in such a way that enables them to get massive income from monthly fees. These companies

regularly expand the mechanics of the games to maintain an enjoyable atmosphere and keep players satisfied in order to play as long as possible. However, the side effect of this business model is that, oftentimes, gamers spend more time than they intended to, constantly searching for rewards in the game and, thus, resulting in excessive game play (Peters & Malasky, 2008).

Consequences of video game addiction.

According to Langley (2010), pathological gamers tend to experience depression, alcohol use, social avoidance, and low self-control. Gordon (2011) argued that children who are addicted to video games spend more time playing than others and when they become pathological players, they may experience depression, anxiety, and other social phobias as well as low school performance. Young (2009) demonstrated that pathological gamers, at times, are not willing to eat, sleep, and interact with other individuals and prefer to spend most of their time on video games. The effect of video game addiction, compared to other addictions, is that gamers enjoy playing so much that they spend too much time playing and not realizing that they are having problems. Furthermore, if young pathological gamers continue the addicted behavior until they become adults, they are likely to have various problems including having few friends as well as work, family, and relationship difficulties (Hou & Hui, 2010). A study demonstrated that loneliness is the main consequence of pathological gaming because online society gives them more comfort than real world (Lemmens et al., 2011). Another research established that the more time spent on gaming, the lower the players' social competence. Additionally, depression, anxiety, social phobias, and lower school performance may be further consequences of pathological gaming (Gentile et al., 2011). It was found that besides psychological problems such as depression, anxiety, and poor life satisfaction, pathological gaming is also associated with poor health due to inappropriate rest time (Mentzoni et al., 2011). A

study demonstrated that younger people have higher risk of problematic video game use than older people, and that pathological gamers tend to be involved with impulse control problems, social incompetence, hostility, poor academic performance, and poor social functioning (Choo et al., 2010).

Interestingly, playing video games does not always lead to negative consequences. A study demonstrated that some nonviolent video games can help children develop their ability to cooperate with others. In the study, children participated in program studies of video games that have characters helping others. The results showed that the children who played video games tend to become more helpful and cooperative (Gentile & Anderson, as cited in Engelson & Jones, 2010).

Video game addiction in Thailand.

A Thai-based study demonstrated that children and adolescents in Thailand play video games for various reasons: to relax, reduce stress, have fun and enjoyment, challenge, win, and update video game trends with friends. Most of them prefer to play video games than do other more productive activities such as engaging in sports or reading books. They reportedly cannot stop playing or reduce time spent on video games, causing many problems such as waste of time, money, poor performance in school, inadequate sleep, and negative relationships in the family (Sota, 2011). Another study found that Thai boys play more video games than girls. Furthermore, in terms of social support, adolescents who live by themselves or without supervision from parents tend to spend more money and time playing video games. The study also pointed out that some children play video games as a method of coping while adjusting to new schools (Phuphaibul et al., 2005). A study that explored factors related to game addiction among Thai children reported a number of findings: younger kids have higher risk to video game addiction due to low self-regulation and lack of ability to make decisions compared to older children

who have more knowledge and experience, hence, less chance of developing game addiction; males play more video games than their female counterparts in as much as most video games are more male-oriented (e.g., sports, action games); adolescents with high self-esteem have lower risk of game addiction; children under adult supervision tend to have lesser chances of addiction; and parental monitoring can help prevent video game addiction in children (Junmukda & Natirutthakorn, 2007).

Depression

Depression is the mental disorder that is characterized by depressed mood, loss of will and interest, guilt, low self-esteem, insomnia, low appetite, exhaustion, and low concentration. These symptoms can be chronic and disrupt people from their everyday activities. In severe cases, these can be the causes of suicide (World Health Organization, 2012). In a state of depression, the individual experiences slowing down of many systems of the body such as speech and body movements; the individual also finds it difficult to react quickly or make decisions and may experience loss of willpower. Furthermore, depression may lead to family/work/relationship problems, feelings of guilt, self-worthlessness, and suicidal thoughts (Tiwari & Ruhela, 2012). Depression, in clinical terms, is characterized by extreme negative mood with long-term sadness and inability to function normally. Stress and depression are usually related and the combined effects are severe, both physically and psychologically. Different individuals may experience depression in different ways, in terms of symptoms, intensity, frequency, and duration; nonetheless, there is an element of commonality in terms of persistent sadness, feelings of emptiness and hopelessness, pessimism, guilt, worthlessness, irritability, loss of interest, difficulty in concentrating, remembering, and making decisions, insomnia, excessive

sleeping, overeating or appetite loss, and suicidal ideation (Russoniello, O'Brien, & Parks, 2009).

Depression and video game addiction.

When people are depressed, they may exhibit social avoidance and retreat from the real world into gaming; and after playing excessively for a period of time, they have a high chance of becoming pathological gamers and may become even more depressed, according to research by Gentile et al. (2011). It was found that people who spend more than 33 hours a week playing video games suffer 24% more depression than balanced gamers or those who play for 21 hours (Loton, 2012). It had been suggested that people turn to activities they like as a means of coping with depression (Nabi, Finnerty, Domschke, & Hull, 2006). Another study reported that video games may act as a device to reduce the level of depression as it offers a sense of control, power, goals, and rewards that the individual might achieve immediately in the game world, especially violent games, thus providing gamers the chance to cope with stressful and depressing situations in life as they are given power and ability over a controlled virtual environment. Furthermore, social isolation in teens may cause depression such that the more teenagers try to isolate themselves, the more prone they are to depression (Tiwari & Ruhela, 2012). Young and Rodgers (1998) argued that the level of depression may increase according to the level of Internet addiction as well as other addictions. Following the same logic, Akin and Iskender (2011) suggested that if an individual can decrease one's level of addiction, he/she can reduce one's level of depression.

Anxiety

Anxiety is the term used for a psychological condition characterized by nervousness, fear, apprehension, and worry. Anxiety affects one's thoughts and behavior

and can be manifested with real physical symptoms. While a low level of anxiety is vaguely discomforting, severe anxiety can cause serious damage on a person's daily life. People normally fear or worry on many occasions such as taking a test or speaking in public. These feelings are normal, but anxiety is considered to be problematic when it affects people's ability to perform or adapt (Medical News Today, 2012). It can lead to social phobia for people with high level of anxiety and excessive self-consciousness in normal social situations. Social phobia is characterized by excessive self-awareness, nervousness, and irrational fear of people's perceptions toward oneself, fear of embarrassment, or fear of doing something not right in public. The disorder may occur for many days and may become so severe that it affects school or work, causing social avoidance. People with anxiety are usually aware of their condition but cannot control their feelings such that, when faced with an anxiety-provoking situation, they feel anxious, uncomfortable, and worry about what people might think for some time afterwards (National Institute of Mental Health, 2012).

Anxiety and video game addiction.

When children become addicted to video games, they have high chances of becoming anxious and developing social phobia (Gordon, 2011). Loton (2012) observed that people who spend more than 33 hours a week playing video games suffer 15% more anxiety than balanced gamers or those who play for 21 hours. Gentile et al. (2011) suggested that gamers with pathological anxiety and social phobia become worse, depending on their social avoidance behavior, but will gradually better when they recover from their pathological state. According to Lo et al. (2005), as the time spent playing video game increases, the level of social anxiety also increases due to social avoidance behavior.

Stress

'Stress' is anything that poses a challenge or threat to one's well-being. It can be any interaction between an individual and his/her environment, and it can be challenging or threatening, whether that individual can cope with it or not. It generally occurs when an individual feels that something has become too much to take. Low level stress can be good to the mind as it may be challenging and help develop coping skills but high level stress can be dangerous psychologically. An individual who is stressed may develop high blood pressure, breathe more deeply, experience increased heart rate, or may be unable to sleep. Stress is perceived differently, depending on the individual; thus, what might be stressful to one person might not be stressful to another (Medical News Today, 2009).

Stress and video game addiction.

In some cases, when an individual is faced with some difficult situation in everyday life and the individual finds it hard to cope, that individual might turn to video games to distract oneself from facing the problem or to escape from reality (Wood & Griffiths, 2007). In agreement with the latter statement, video games can help an individual escape from stressful situations in daily life (King & Delfabbro, 2009). A study reported that peer pressures and environmental distresses are the main reasons why adolescents become game addicts. Often, their friends are gamers and it becomes harder for adolescents to recover from addiction because most of them have computers in their room (Young, 2009). Additionally, pathological gamers may perceive that playing video games excessively can be rewarding and an effective way of coping with stress (Weinstein, 2010). When playing video games as a means of coping becomes a priority in life, it can be a serious cause of video game addiction (Arnesen, 2010). Excessive gamers show different styles of coping with stress; they prefer avoidance coping style and have lower approaching style compared to balanced gamers (Loton, 2012). The reason for this

may be because video games are used as a coping mechanism to distract the self from life difficulties. Video games can be used as a coping mechanism to complete the person's unfulfilled needs or to hide in a safe place; it can help gamers to forget their problems in the short-term; however, in the long-term, problems will only get worse because they have not been solved but only put aside. It was suggested that most students who play Internet online games feel that the enjoyment of video gaming can help them reduce stress, solve personal problems, and support interpersonal communication skills (Techavimol & Walsh, 2011). In a different context, stress caused by academic and family pressures can lead to video game addiction in children (Hou & Hui, 2010). Young (2009) stated that adolescents might turn to video games to escape stress from their families, caused by poor family relationships or parenting style.

Sota (2011) argued that video games can also be the cause of stress; instead of playing to reduce stress, sometimes individuals get stressed when trying to overcome challenges in the game, when losing and taunted by other players, or when unable to play the game. Negative consequences from game addiction also cause stress such as poor academic performance, failure to do one's homework, or problems with family members (Lo et al., 2005). It had been suggested that excessive video gaming is an inadequate means for coping with frustration, stress, and fears as in other substance abuse.

Self-Regulation

Self-regulation is the ability of an individual to manage his own behavior through observation, evaluation, and consequation (Bandura, 1999). According to Bandura and associates (2003), self-regulation is how we control our behavior, and it consists of three steps: (1) self-observation (people look at other people in the environment and memorize ideas about it); (2) self-evaluation (people compare themselves with various standards

from others or from one's own expectations); and (3) self-consequation or self-response (if others' judgment is good, then people will give themselves a reward such as a nice meal; but if it's bad, they give themselves a punishment such as feeling of guilt).

One important concept in psychology that usually comes along with self-regulation is self-concept (self-esteem). If most of the time people find that they usually meet their expected standards, then they usually have high self-esteem. In contrast, if their standards are not met, then people usually have low self-esteem (Boeree, *2006*).

Self-regulation and video game addiction.

Seay and associates (2007) explained the concept of self-regulation in relation to video gaming. Self-observation is when an individual has awareness about the amount of time spent on video games. Inability to realize the amount of time playing video games is failure in self-monitoring. Self-evaluation is when an individual compares the amount of time playing with friends or other players, whether the individual plays more or less. This is followed by self-response which can be a punishment or reward, depending on the thoughts of the individual on self-evaluation. In a different light, Baumeister and associates (2007) defined the concept of self-control as being interchangeable with self-regulation. Self-control refers to the ability to control one's desire to responses and bring them to many standards such as ideals, values, morals, and social expectations, and to support the pursuit of long-term goals. Low self-control can lead to many negative consequences such as educational problems, drug abuse, and video game addiction. In order to cope with video game addiction, one should start from within oneself. Children with high self-control tend to be calmer, can cope with frustration better, are less irritable and aggressive, concentrate better, and get higher grades in school than children who have less self-control (Funder & Block, 1989; Funder, Block, & Block, 1983). Moreover, children with high self-control can cope with stress better when they become adolescents

and also score higher when applying for college admission (Shoda, Mischel, & Peake, 1990). It is clear that self-control is related to success in many aspects of life. In contrast, children with low self-control have higher chances of becoming pathological gamers *(Gentile et al., 2011).*

Many researchers suggested that self-control or self-regulation can be a protective factor from pathological gaming. Lemmens et al. (2010) found that high level of pathological gaming is related to poor self-control and that affected individuals are unable to resist the urge to play video games. Therefore, self-regulation is a very important factor in preventing adolescents from becoming pathological gamers. Seay et al. (2007) found that individuals with good self-regulation who control their behavior through self-monitoring, self-evaluation, and self-consequation tend to have lower risk of problematic gaming. In Thailand, Junmukda and Natirutthakorn (2007) reported the following findings in relation to self-regulation and video game addiction: younger children have higher risk of game addiction due to lower self-regulation; younger elementary school children have higher chances of becoming addicted to games than older elementary school children; and younger high school children have higher chances of addiction than older high school children. Thus, self-regulation had been identified as being related to videogame addiction in the following way: video game addiction seems to have less effect on older children who seems to have higher self-regulation and, hence, lower addiction to video games.

Social Support

Social support refers to tangible or intangible support from other people around an individual (Cohen & Hobberman, 1983) or through a person's relationships with other people (Longman et al., 2009). People who have high level of social support suffer less from negative outcomes, both physically and psychologically (Cutrona & Russell, 1987).

Social support may come from different sources such as family, friends, teachers, and community or any social group to which one is affiliated. There are three dimensions of support provided: warmth, behavioral control, and psychological autonomy-granting. These three dimensions can help develop positive self-conceptions and social skills, responsibility and competence, and impulse control that may reduce psychological problems. Social support can be a tangible resource provided by others and may come in the form of appraisal of different situations, effective coping strategies, and emotional support. Moreover, it can reduce the amount of stress and help individuals cope better with stressful situations (Yasin & Dzulkifi, 2010). According to Lakey and Cohen (2000), there are three kinds of social support: (1) perceived support (support that an individual expects from family and friends; if the support is high, the individual has less stress when faced with difficulties); (2) enacted support (focused more on actions from people); and (3) social integration support (related to different types of social roles and functions such as members in an organization or students in a school).

Social support is a very important factor for the well-being of people. It significantly helps people cope with stress more successfully and overcome negative aspects in their life (Clark, 2005). Social support also functions as a buffer against life stressors and also promotes health and wellness (Dollete, Steese, Philips, & Matthew, 2004). Lack of social support can relate to many psychological disorders such as loneliness, anxiety, and depression (Eskin, 2003). Past research has shown that social support can reduce stress and depression and help in terms of psychological well-being (e.g., Lin, Woelfel & Light, 1985; Olsen, Iversen, & Sabroe, 1991). The social environment of children is broader as they enter adolescence; they have the chance to meet more people outside, get new experiences, and meet people who might influence their social behaviors. The teenager learns to adjust socially, relate to and accept the views of

others, and satisfy their constant need for social approval. Adolescents who have low adjustment skills are likely to feel abandoned, isolated, have low self-worth, and may isolate themselves from society to avoid pain (Tiwari & Ruhela, 2012). Yasin and Dzulkifi (2010) reported a significant negative correlation between social support and psychological problems among students; thus, it is important for parents, teachers, and friends to provide adequate social support in an effort to control psychological problems among the youth.

Social support and video game addiction.

Some people who have problems adjusting to society may turn to video games because the recognition they receive in digital society is different from that of the real world; thus, they face the risk of getting addicted to video games (King & Delfabbro, 2009). People who play video games to avoid stressors or escape from the real world tend to have high risk for problematic use because while playing video games helps them cope with stress, it also keeps them attracted; thus, keeping them further away from normal life rather than having to face it (Seay et al., 2007). Video game addiction reduces the quality of interpersonal relationships as gamers spend more time on video games and have less interpersonal conversations with other people (Lo et al., 2005). People around the pathological gamer can help minimize video game addiction as social support, both tangible and intangible, have been shown to improve physical health and reduce negative psychological symptoms such as depression and anxiety (Longman et al., 2009).

Social compensation hypothesis suggests that any individual who does not have successful relationships in real society might gain better quality social relationships from online society as it provides stability and a safer way of communication with other online players (Cole & Griffith, 2007). Online games can provide social interactions in an environment that is considerably enjoyable, with many people gaining more online friends,

and players can express themselves in ways that are more different and restricted in real life due to age, gender, appearance, and sexuality. After players start online relationships and spend more time online, the system could damage real-life relationships such as marriage and family relationships (Young, 2009). Spending excessive time on the Internet related positively to depression, anxiety, stress, and less social interaction, according to Akin and Iskender (2011). On the other hand, online social interaction can benefit individuals who have high quality real-life friendships in the real world because it is another means of keeping friendships and expanding them. In the case of addicted gamers with high quality friendships, they may have protective factors from negative psychosocial consequences. Addicted gamers have high risk of developing psychological problems, especially loneliness and social anxiety, but addicted gamers with high quality friendships and social support tend to be less lonely and have less social anxiety (Van Rooij, 2011). Hague and Gentile (2003) found that pathological gamers tend to get involved in physical fights, have more arguments with friends and teachers, and have low academic performance. Young (2009) suggested that gamers who formed online social life tend to value it more than real social life and ignore other relationships because online society is more fulfilling. This may cause many problems in relationships such as breakups, divorce, and family problems as they withdraw from their normal activities and engage more in playing video games. Weinstein (2010) opined that video game addiction may cause social problems when gamers play excessively, isolate themselves from others, and focus heavily on video games than on others.

Thai perspectives on social support and video game addiction.

Video game addiction affects Thai family relationship and functioning negatively, according to a study by Sota (2011). The study revealed that some children play video games because they do not get enough attention from their parents, and that some

reportedly steal money from their parents to be able to play video games. Parents who are concerned with their children's behavior might try to reduce or eliminate the addiction by yelling or scolding their children. This results in children having negative relationship with family members and loved ones (e.g., boyfriends, girlfriends). Additionally, video game addiction causes problems within Thai society as it was found to be significantly related to poor performance in school, difficulty in finding suitable employment, and lost future (Sota, 2011). Another study demonstrated that parenting style, family relationship, and monthly income have lower influence on game addiction compared to friends because adolescents spend more time with their friends and that friends reportedly influence them more than their family members (Supaket, Munsawaengsub, Nanthamongkolchai, & Apinuntavetch, 2008). It was also found that video games, especially the violent types, lead to negative social behaviors such as aggressiveness and reduce prosocial behaviors. Moreover, adolescents who do not live with their family spend twice as much time playing video games than those who live with their family (Phuphaibul et al., 2005). Junmukda and Natirutthakorn (2007) reported that social support from the family and parental monitoring help reduce the risk of video game addiction. The authors explained that since children have not yet developed high self-regulation at a young age, they need parental guidance to help them manage their time on certain activities, including playing video games.

Relationships among the Key Variables

Video game addiction, depression, anxiety, and stress.

There is adequate research evidence that children who spend too much time on video games have high chances of going into pathological gaming and are likely to become depressed, anxious, or develop social phobia (Gordon, 2011). Young (2009) found that as addiction develops, gamers tend to exhibit symptoms of withdrawal, anxiety,

depression, irritability, restlessness, and obsessive thinking. Nabi et al. (2006) suggested that individuals with depressed mood or stress may use video games as a means of coping with their emotions, especially violent games which may, in some circumstances, offer some feeling of control, power, and dominance while also allowing the player to accomplish tangible and immediate goals in the game. Another study showed that depression, anxiety, social phobia, and school performance become worse when the individual gets addicted to video games; the situation, however, gradually improves when the individual ends the addiction (Gentile et al., 2011). It had been demonstrated that some players use excessive video gaming as a means of coping with psychological problems such as depression and anxiety. This explains why some people get addicted but some do not, and that video games are not inherently addicted; they are merely ways for vulnerable people to escape from their real-life problems. Research strongly supports the relationship between videogame addiction and depression, anxiety, and stress; the higher the video game addiction, the higher the level of depression, anxiety, and stress (King et al., 2010).

Video game addiction, self-regulation, depression, anxiety, and stress.

Langley (2010) established a correlation between video game addiction and depression, social isolation, need for social interaction, and lack of self-regulation. The result of a multiple regression indicated that depression has the most significant link to video game addiction which implies an unhealthy correlation between mental health and addicted behavior. A related study suggested that high level of depression may obstruct the process of self-regulation; that is, depression is not the main cause of problematic gaming but it can reduce self-belief in one's ability to manage self-regulation, obstruct the self-regulatory process, and increase the risk of problematic gaming (Seay et al., 2007).

Video game addiction, social support, depression, anxiety, and stress.

It was found that addicted online video gamers have higher scores on depression, anxiety, loneliness, and low self-esteem compared to other online video gamers. Some gamers may rely so much on online game society to decrease their level of loneliness, low self-esteem, depression, and anxiety that relying exclusively on online relationships may decrease the level of social interaction and social support that gamers need in real life (Van Rooij, 2010). Another study echoed the foregoing findings by suggesting that some social problems may occur from playing video game excessively such as social isolation, lack of social support, depression, anxiety, and stress (Griffiths, 2000). Yasin and Dzulkifi (2010) partly concurred by stating that social support can help reduce the amount of stress experienced as well as help individuals cope better with stressful events.

Video game addiction and gender.

Past research has demonstrated that males generally spend more time per week playing video games compared to females who spend significantly less time playing. Additionally, it was found that males are significantly more likely to be addicted (Hague & Gentile, 2003; Arnesen, 2010). In agreement with the latter findings, Chan and Rabinowitz (2006) pointed out that adolescent males are significantly more likely than females to spend more than one hour per day playing video games. However, there is no significant relationship between gender and time spent on other activities such as watching television or surfing the Internet. It was also established that male gamers reportedly lose track of time whilst playing video games compared to females (Wood, Gupta, Derevensky, & Griffiths, 2004). Other related studies presented partly similar findings. It was suggested that male gender and young age are strong predictors of problematic video game use (Mentzoni et al., 2011). Additionally, while male adolescents are at greater risk of having problems with their computer use, video game addiction may occur to any demographic

users because the interaction from computers and video games are designed for various age groups and genders (King, 2010).

Conceptual Framework

Figure 1 presents the conceptual framework of the study, incorporating the hypothesized interrelationships between the core variables.

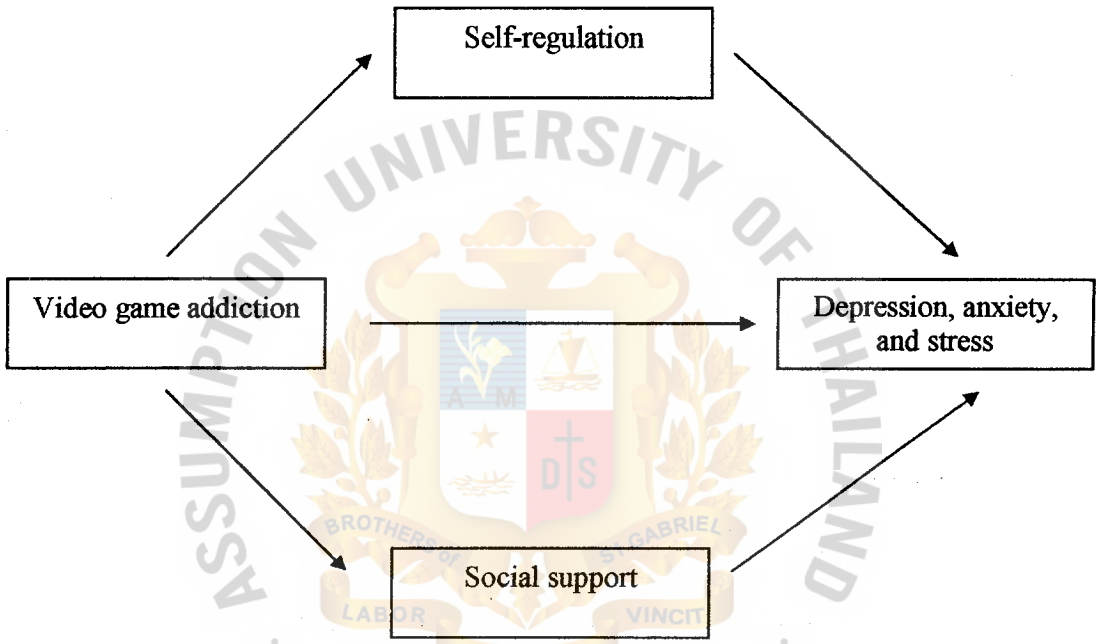

Figure 1. Path model showing depression, anxiety, and stress as a function of the direct and indirect influences of video game addiction, being mediated by self-regulation and social support.

Research Questions

Based on the literature review and conceptual framework of the study, the following research questions were posited:

1. What are the levels of video game addiction, depression, anxiety, and stress among Thai adolescents?

2. Is there a direct influence of video game addiction on depression, anxiety, and stress among Thai adolescents?
3. Is there an indirect influence of video game addiction on depression, anxiety, and stress among Thai adolescents, being mediated by self-regulation and social support?

Research Hypotheses

The following hypotheses were generated for testing to meet the objectives of the study.

1. There is a direct influence of video game addiction on depression, anxiety, and stress such that the higher the level of video game addiction, the higher will be the levels of depression, anxiety, and stress.
2. There is an indirect influence of video game addiction on depression, anxiety, and stress, being mediated by self-regulation, such that the higher the level of video game addiction, and the higher the level of self-regulation, the lower will be the levels of depression, anxiety, and stress.
3. There is an indirect influence of video game addiction on depression, anxiety, and stress, being mediated by social support, such that the higher the level of video game addiction, and the higher the level of social support, the lower will be the levels of depression, anxiety, and stress.

CHAPTER III

Methodology

The current study examined the direct and indirect influences of video game addiction on depression, anxiety, and stress among Thai adolescents, being mediated by self-regulation and social support. This chapter presents information on the study's research design, participants, research instrumentation, data collection procedure, and data analysis.

Research Design

This study is multivariate and correlational in design as it attempted to explore the relationships among the following variables: video game addiction, depression, anxiety, stress, self-regulation, and social support (among Thai adolescents). This study used the quantitative approach, utilizing descriptive and inferential statistical tools to analyze research data obtained by means of a self-administered survey questionnaire.

Participants of the Study

The target respondents of this study consisted of high school or university adolescent students in Bangkok, aged 18-20 years. The participants were recruited through convenience sampling. The inclusion criteria for participants, male and female, consisted of the following: (a) high school or university students in Bangkok; (b) aged between 18 and 20 years; (c) have video game experience; and (d) willing to participate in the study. . As the proposed path model was to be tested via multiple regression analysis, the sample size required was determined by both the power of the statistical test, the effect size of the predictor variables, and the number of predictor variables in the model. Power in multiple

regression analysis refers to the probability of detecting as statistically significant a specific level of R-square, or a regression coefficient at a specified significance level (Hair, Anderson, Tatham, & Black, 1995). Effect size is defined as the probability that the predictor variables in the regression model do have a real effect in predicting the dependent variable, i.e., the sensitivity of the predictor variables. The statistical program G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007) was employed to determine the required sample size. Setting the significance level at .05, power at .95, and effect size at .15 (medium) for three predictor variables, the required minimum sample size was determined to be 129. However, in order to enhance the external validity of the obtained findings, it was decided to increase the recommended sample size to approximately 200 respondents.

Research Instrumentation

The research instrument used in this study was a self-administered five-part survey questionnaire in Thai (see Appendix B). Detailed description of each part of the survey questionnaire is presented in the following section.

Part 1. Personal Information

The Personal Information section is a researcher-constructed set of questions aimed at deriving categorized information on the respondents' targeted demographic characteristics, namely: gender, age, and education level. To maintain confidentiality, personal information that are not related to the study and which would directly identify respondents were not included in the questionnaire.

Part II. Game Addiction Scale (GAS)

The instrument employed to evaluate the level of video game addiction was the short version (seven items from the original 21) of the *Game Addiction Scale* (GAS)

developed by Lemmens, Valkenburg, and Peter (2009) for adolescents. Each item was developed following seven criteria, namely: (1) Salience – playing a game becomes the most important activity in a person's life and dominates his or her thinking (preoccupation), feelings (cravings), and behavior (excessive use); (2) Tolerance – the process whereby someone starts playing games more often, thereby gradually building up the amount of time spent on games; (3) Mood modification – the subjective experiences that people report as a result of engagement in games; (4) Withdrawal – unpleasant emotions and/or physical effects that occur when game play is suddenly reduced or discontinued; withdrawal consists mostly of moodiness and irritability, but may also include physiological symptoms such as shaking; (5) Relapse – the tendency to repeatedly revert to earlier patterns of game play; excessive playing patterns are quickly restored after periods of abstinence or control; (6) Conflict – this refers to all interpersonal conflicts resulting from excessive gaming; conflicts exist between the player and those around him/her; and (7) Problems – this refers to problems caused by excessive game play; it mainly concerns displacement problems as the object of addiction takes preference over activities such as school, work, and socializing. Problems may also arise within the individual such as intrapsychic conflict and subjective feelings of loss of control.

Lemmens et al. (2009) evaluated the Game Addiction Scale's validity and reliability using population cross-validation by giving two independent samples of adolescent gamers (sample 1: N=352 and sample 2: N=369) and assessing whether the hypothesized dimensional structure of the scale holds for both samples and used concurrent validity by comparing scores on the GAS to time spent on the game, life satisfaction, loneliness, social competence, and aggression. Both 21-item and 7-item versions of the scale showed strong correlation with time spent on games and significant moderate correlations with the psychosocial variables; additionally, the correlations were

highly comparable across both samples. The GAS is designed mainly for adolescents; further research is needed for the scale to be used in other age groups such as young children or adults. The authors also suggested that there should be future research about causal relation between game addiction and psychosocial variables.

Part III. Depression, Anxiety, and Stress Scale (DASS-21)

The instrument employed to evaluate depression, anxiety, and stress was the *Depression, Anxiety, and Stress Scale* (DASS-21), developed by Lovibond and Lovibond (1995). The DASS-21 is a 21-item self-report quantitative instrument that consists of three subscales designed to measure the three negative symptoms of psychological arousal – depression, anxiety, and stress. Each subscale is composed of seven items to reflect negative symptoms experienced in the past (over the past week). Each item is scored on 4-point scale where 0 = *Did not apply to me at all*, 1 = *Applied to me to some degree, or some of the time*, 2 = *Applied to me to a considerable degree, or a good part of the time*, and 3 = *Applied to me very much, or most of the time*. The score for each of the three subscales (depression, anxiety, and stress) is computed by summing across the items in the subscale and multiplying by two; and the higher the score, the more severe the symptoms.

The DASS-21 was developed and normed on a sample of 2,914 adults and the means (and standard deviations) of the depression, anxiety, and stress subscales were 6.34 (6.97), 4.7 (4.91), and 10.11 (7.91), respectively. A clinical sample reported means (and standard deviations) of 10.65 (9.3), 10.90 (8.12), and 21.1 (11.15), respectively. From a clinical sample of 437 participants, the DASS-21 showed excellent internal consistency: .96, .89 and .93, for depression, anxiety, and stress, respectively. Test-retest reliability coefficients over a two-week period were .71, .79, and .81, respectively (Lovibond & Lovibond, 1995).

Part IV. Self-Regulation Questionnaire (SRQ)

The instrument employed to evaluate the level of self-regulatory processes in order to achieve goals was the *Self-Regulation Questionnaire* (SRQ), developed by Brown, Miller, and Lawendowski (1999). Self-regulation is the ability to develop, implement, and flexibly maintain planned behavior in order to achieve one's goals. The SRQ scale consists of 63 items and each of the items is scored on a 5-point Likert scale where 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Uncertain or unsure*, 4 = *Agree*, and 5 = *Strongly agree*, with high scores indicating high (intact) self-regulation capacity and low scores indicating low (impaired) self-regulation capacity.

The reliability of the SRQ is excellent, according to a study by Aubrey, Brown, and Miller (1994) and the test-retest reliability for the total SRQ score was high ($r=.94$, $p<.0001$). Furthermore, the internal consistency of the scale was also quite high ($\alpha=.91$). The SRQ has also shown strong validity with concomitant measures; that is, people with low score on SRQ tend to have low self-regulation.

Part V. Social Provisions Scale (SPS)

The instrument employed to evaluate the level of social support was the *Social Provisions Scale* (SPS) which was developed to assess the provisions of social relationships. The six provisions include: (1) guidance (advice or information), (2) reliable alliance (assurance that others can be counted on in times of stress), (3) reassurance of worth (recognition of one's competence), (4) attachment (emotional closeness), (5) social integration (a sense of belonging to a group of friends), and (6) opportunity for nurturance (providing assistance to others). The SPS consists of 24 items and each of these is scored on a 5-point Likert scale where 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Uncertain or unsure*, 4 = *Agree*, and 5 = *Strongly agree*. A score for each social provision is derived such that a high score indicates that the individual is receiving that perceived support.

The reliability of the scale is acceptable, with the test-retest reliability reported by Cutrona (1984) with coefficients ranging from .37 to .66. Cutrona and Russell (1987) evaluated the reliability of the scale by giving the test to large sample (N=1,792) and the reliability of the subscales were deemed adequate for use of the instrument in research contexts, with coefficient alphas ranging from .653 to .760. Reliability of the total SPS was reported to be .915; thus, the internal consistency of the scale is acceptable. Russell and Cutrona (1984) administered a 12-item version of the scale with two items measuring each support dimension to 505 college students. Each pair of items contained one item that was worded positively and one that was worded negatively. The correlations between the two items for each provision ranged from r=-.33 (reassurance of worth) to r=-.56 (reliable alliance) (Russell, Cutrona, Rose, & Yurko, 1984). Cutrona and associates' (1984) study on approximately 100 elderly subjects revealed internal consistency figures, across all provisions, to be above .70. In a study of approximately 300 school teachers, internal consistency estimates were all above .60 (Russell, Altwater, & Van Velzen, 1984). Cutrona et al. (1984) reported test-retest reliability coefficient ranging from .37 to .66. Factor analysis has confirmed a six-factor structure corresponding to the six social provisions. Several studies support its construct validity (Cutrona & Russell, 1987).

Data Collection Procedure

For all practical purposes, it was necessary to translate the full survey questionnaire into Thai from the original English version, for use with Thai adolescents. For the Thai version, the questionnaire was translated by a professional translator and then back-translated to the source language by a different translator. The forward and back-translated versions were compared to the original English questionnaire for consistency. Translation also served as a method for testing the face validity of items in these measures.

250 questionnaires were given to Thai adolescents but only 200 adolescent students who meet the age criteria were recruited through convenience sampling. After collection of all the completed questionnaires, the researcher individually inspected the questionnaires to check for possible errors of commission or omission. Only valid questionnaires were subjected to statistical analysis.

Data Analysis

After completion of the data collection process, the respondents' data were encoded, processed, and analyzed. Data analysis was accomplished through the following statistical treatments:

Descriptive statistics.

Frequency and percentage distributions were employed to analyze the respondents' demographic data. Means and standard deviations were utilized in the analysis of the respondents' scores.

Inferential statistics.

Path analysis via multiple regression analysis was employed to test the hypothesized direct and indirect impacts of video game addiction on Thai adolescents' levels of depression, anxiety, and stress, being mediated by their levels of self-regulation and social support.

CHAPTER IV

Results

This chapter presents the results of the analyses conducted to test the hypotheses generated from the path model presented in Figure 1. Descriptive statistics for the variables of video game addiction, depression, anxiety, stress, self-regulation, and social support are also presented. The analyses conducted and the results obtained are presented in the following sequence:

1) Demographic profile of respondents
2) Reliability test of items that represent the factors of video game addiction, depression, anxiety, stress, self-regulation, and social support
3) Means and standard deviations of the factors of video game addiction, depression, anxiety, stress, self-regulation, and social support as a function of the respondents
4) Path analysis via regression analysis to test the hypothesized path model (Figure 1)

Demographic Profile of Respondents

The sample consisted of 200 respondents; 98.5% (n=197) were males and 1.5% (n=3) were females. Their ages ranged from 18 to 20 years. In terms of educational level, 121 were high school students and 79 were university students.

Reliability Analysis of Scales Employed

Prior to computing the scales of video game addiction, depression, anxiety, stress, self-regulation, and social support, reliability analysis was conducted on the items that

represent the six scales. The purpose of the reliability analysis was to maximize the internal consistency of the six measures by identifying those items that are internally consistent (i.e., reliable), and to discard those items that are not. The criteria employed for retaining items are: (1) any item with 'Corrected Item-Total Correlation' (I-T) $\geq$.33 will be retained ($.33^2$ represents approximately 10% of the variance of the total scale accounted for), and (2) deletion of an item will not lower the scale's Cronbach's alpha.

Table 1 presents the retained items for the six scales, together with their I-T coefficients and Cronbach's alphas.

Table 1

Scale Items Together With Their Corrected Item-Total Correlations and Cronbach's Alphas

Video Game Addiction	Corrected Item-Total Correlations
• Did you think about playing a game all day long?	.74
• Did you spend increasing amount of time on games?	.82
• Did you play games to forget about real life?	.80
• Have others unsuccessfully tried to reduce your game use?	.82
• Have you felt bad when you were unable to play?	.80
• Did you have fights with others (e.g., family, friends) over your time spent on games?	.80
• Have you neglected other important activities (e.g., school, work, sports) to play games?	.78

Cronbach's Alpha = .94

Depression	Corrected Item-Total Correlations
• I couldn't seem to experience any positive feeling at all.	.58
• I found it difficult to work up the initiative to do things.	.59
• I felt that I had nothing to look forward to.	.63
• I felt down-hearted and blue.	.59
• I was unable to become enthusiastic about anything.	.68
• I felt I wasn't worth much as a person.	.71
• I felt that life was meaningless.	.67

Cronbach's Alpha = .86

Anxiety	Corrected Item-Total Correlations
• I was aware of dryness of my mouth.	.51
• I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	.48
• I experienced trembling (e.g., in the hands).	.44
• I was worried about situations in which I might panic and make a fool of myself	.53
• I felt I was close to panic.	.32
• I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	.56
• I felt scared without any good reason.	.44

Cronbach's Alpha = .72

Stress	Corrected Item-Total Correlations
• I found it hard to wind down.	.55
• I tended to over-react to situations.	.58
• I felt that I was using a lot of nervous energy.	.55
• I found myself getting agitated.	.60
• I found it difficult to relax.	.55
• I was intolerant of anything that kept me from getting on with what I was doing.	.61
• I felt that I was rather touchy.	.62

Cronbach's Alpha = .83

Self-Regulation	Corrected Item-Total Correlations
• I usually keep track of my progress toward my goals.	.54
• My behavior is not that different from other people.	.53
• Others tell me that I keep on with things too long.	.58
• I doubt I could change even if I wanted to.	.49
• I have trouble making up my mind about things.	.47
• I get easily distracted from my plans.	.54
• I reward myself for progress toward my goals.	.46
• I don't notice the effects of my actions until it's too late.	.48
• My behavior is similar to that of my friends.	.56
• It's hard for me to see anything helpful about changing my ways.	.50
• I am able to accomplish goals I set for myself.	.27
• I put off making decisions.	.59

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- I have so many plans that it's hard for me to focus on any one of them. .52
- I change the way I do things when I see a problem with how things are going. .61
- It's hard for me to notice when I've "had enough" (food, sweets). .53
- I think a lot about what other people think of me. .51
- I am willing to consider other ways of doing things. .54
- If I wanted to change, I am confident that I could do it. .53
- When it comes to deciding about a change, I feel overwhelmed by the choices. .28
- I have trouble following through with things once I've made up my mind to do something. .52
- I don't seem to learn from my mistakes. .47
- I'm usually careful not to overdo it when working, eating. .59
- I tend to compare myself with other people. .49
- I enjoy a routine, and like things to stay the same. .48
- I have sought out advice or information about changing. .54
- I can come up with lots of ways to change, but it's hard for me to decide which one to use. .52
- I can stick to a plan that's working well. .57
- I usually only have to make a mistake one time in order to learn from it. .56
- I don't learn well from punishment. .18
- I have personal standards, and try to live up to them. .61
- I am set in my ways. .55

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- As soon as I see a problem or challenge, I start looking for possible solutions. .55
- I have a hard time setting goals for myself. .57
- I have a lot of willpower. .53
- When I'm trying to change something, I pay a lot of attention to how I'm doing. .54
- I usually judge what I'm doing by the consequences of my actions. .58
- I don't care if I'm different from most people. .59
- As soon as I see things aren't going right, I want to do something about it. .54
- There is usually more than one way to accomplish something. .46
- I have trouble making plans to help me reach my goals. .58
- I am able to resist temptation. .40
- I set goals for myself and keep track of my progress. .43
- Most of the time, I don't pay attention to what I'm doing. .52
- I try to be like people around me. .54
- I tend to keep doing the same thing, even when it doesn't work. .45
- I can usually find several different possibilities when I want to change something. .45
- Once I have a goal, I can usually plan how to reach it. .43
- I have rules that I stick by, no matter what. .51
- If I make a resolution to change something, I pay a lot of attention to how I'm doing. .49
- Often, I don't notice what I'm doing until someone calls

my attention.	.58
• I think a lot about how I'm doing.	.43
• Usually, I see the need to change before others do.	.53
• I'm good at finding different ways to get what I want.	.54
• I usually think before I act.	.41
• Little problems or distractions throw me off course.	.42
• I feel bad when I don't meet my goals.	.48
• I learn from my mistakes.	.50
• I know how I want to be.	.43
• It bothers me when things aren't the way I want them.	.40
• I call in others for help when I need it.	.40
• Before making a decision, I consider what is likely to happen if I do one thing or another.	.42
• I give up quickly.	.44
• I usually decide to change and hope for the best.	.42

Cronbach's Alpha = .95

Social support	Corrected Item-Total Correlations
• There are people I can depend on to help me if I really need it	.54
• I feel that I do not have close personal relationships with other people.	.59
• There is no one I can turn to for guidance in times of stress.	.51
• There are people who depend on me for help.	.52
• There are people who enjoy the same social activities I do.	.59
• Other people do not view me as competent.	.52

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- I feel personally responsible for the well-being of another person. .59
- I feel part of a group of people who share my attitudes and beliefs. .64
- I do not think other people respect my skills and abilities. .64
- If something went wrong, no one would come to my assistance. .60
- I have close relationships that provide me with a sense of
- emotional security and well-being. .55
- There is someone I could talk to about important
  decisions in my life. .55
- I have relationships where my competence and skills
  are recognized. .52
- There is no one who shares my interests and concerns. .50
- There is no one who really relies on me for their well-being. .60
- There is a trustworthy person I could turn to for advice if
- I were having problems. .50
- I feel a strong emotional bond with at least one other person. .54
- There is no one I can depend on for aid if I really need it. .56
- There is no one I feel comfortable talking about problems with. .57
- There are people who admire my talents and abilities. .62
- I lack a feeling of intimacy with another person. .55
- There is no one who likes to do the things I do. .57
- There are people I can count on in an emergency. .51
- No one needs me to care for them. .52

Cronbach's Alpha = .924

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As can be seen from Table 1, all the 7 items were retained to represent the measure of video game addiction; all the 63 items were retained to represent the measure of self-regulation; and all the 21 items were retained to represent the measure of social support. Furthermore, of the total items of the DASS-21, all 7 items were retained to represent the measure of depression; 7 items were retained to represent the measure of anxiety; and 7 items were, likewise, retained to represent the measure of stress. The computed Cronbach's alpha coefficients for all six scales were adequate and ranged from .72 to .94. Each of the factors of video game addiction, depression, anxiety, stress, self-regulation, and social support was then computed by summing across the items that make up that factor, and their means and standard deviations calculated.

Means and Standard Deviations for the Six Computed Factors

Table 2 presents the means and standard deviations for the six computed factors as a function of the respondents.

Table 2
Means and Standard Deviations for the Six Computed Factors

	Mean	SD	Midpoint
• Video game addiction	3.28	1.02	3.00
• Depression	2.68	.61	2.50
• Anxiety	2.72	.54	2.50
• Stress	2.73	.59	2.50
• Self-regulation	3.22	.50	3.00
• Social support	3.27	.58	3.00

Table 2 presents the means and standard deviations for the six computed factors and the midpoint. From the mean, it is clear that the participants of the research were, to

some extent, addicted to video games inasmuch as their mean score is higher than the midpoint. The respondents had relatively high levels of self-regulation and social support as evidenced by their corresponding scores being higher than the midpoint. At the same time, the participants reportedly had, to some extent, depression, anxiety, and stress as their respective means were higher than the midpoint.

Path Analysis to Test the Hypothesized Path Model

In order to test the hypothesized direct and indirect relationships represented by the path model (Figure 1), path analysis via regression analysis was conducted. The path model with the three dependent variables of depression, anxiety, and stress were run separately. The analysis also involved: (1) regressing the dependent variable of depression on the predictor variables video game addiction, self-regulation, and social support, and (2) regressing the mediator variables of self-regulation and social support on the predictor variable of video game addiction. The same analysis was repeated for the dependent variables anxiety and stress.

The results of path analyses are presented in Figures 2, 3, and 4. In order to aid the interpretation of results, only path coefficients that are statistically significant ($p<.05$) were included in the cited figures.

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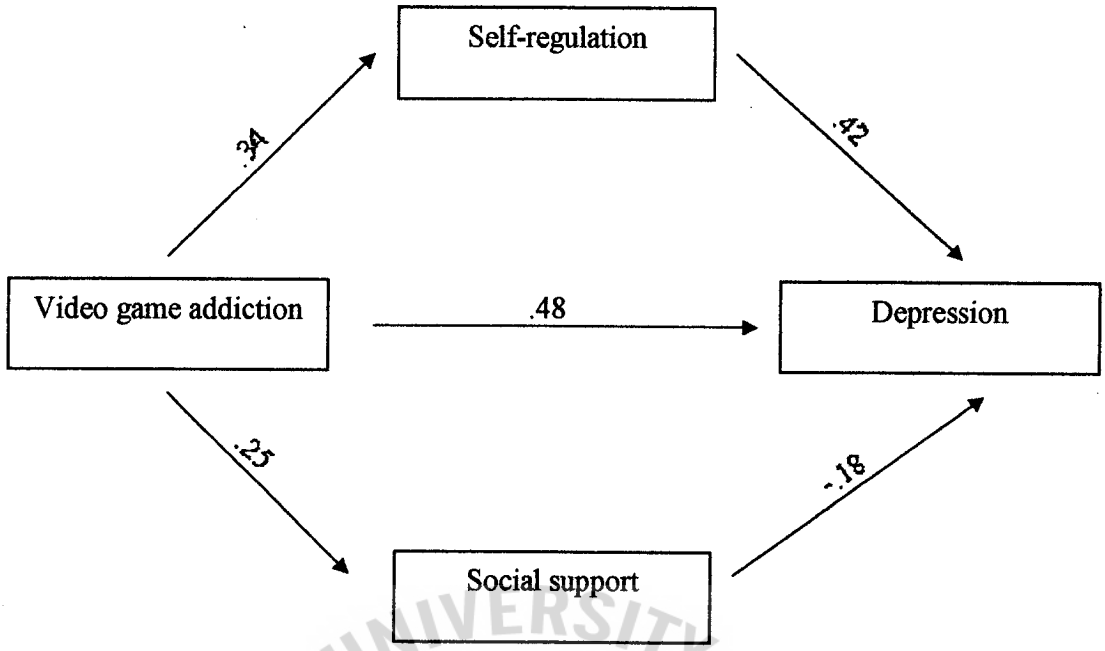

Figure 2. Path model of depression as a function of the direct and indirect influences of video game addiction, being mediated by self-regulation and social support.

The results showed that the respondents' level of video game addiction has a direct influence on their level of depression, such that the higher their level of addiction, the higher is their level of depression (Beta=.48). The results also showed that video game addiction has an indirect influence on the level of depression, being mediated by self-regulation and social support. This means that the higher the respondents' level of video game addiction, and the higher their reported level of self-regulation (Beta=.34), the higher is their reported level of depression (Beta=.42). Subsequently, the higher the respondents' level of video game addiction, and the higher their level of social support, the lower is their reported level of depression (Beta=.25 and Beta -0.18, respectively).

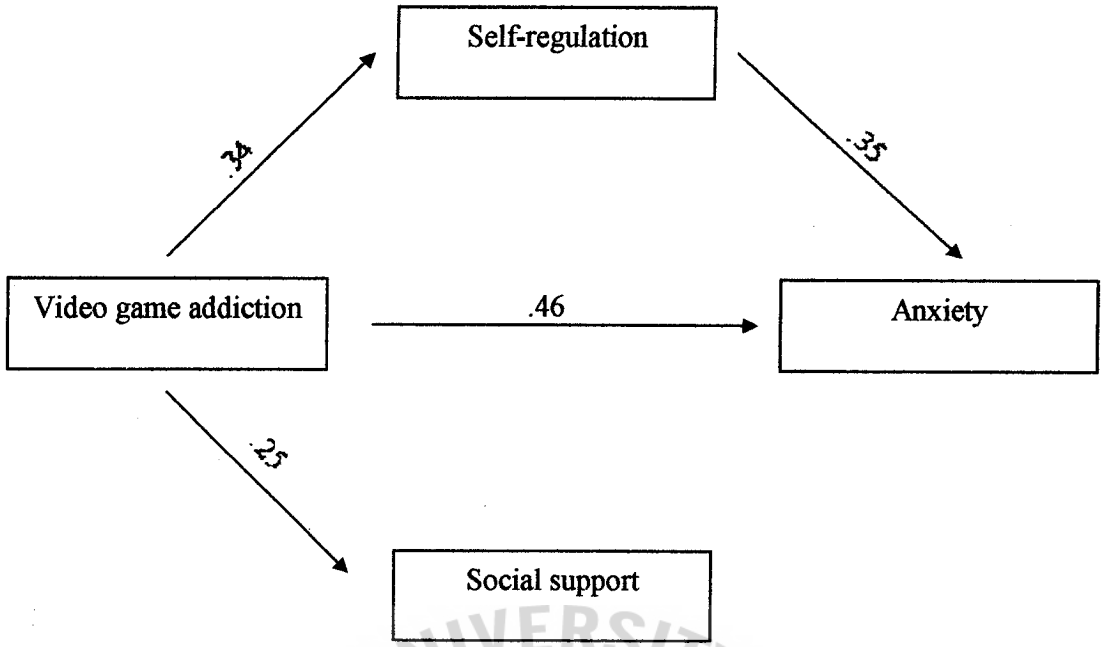

Figure 3. Path model of anxiety as a function of the direct and indirect influences of video game addiction, being mediated by self-regulation and social support.

The results showed that the respondents' level of video game addiction has a direct influence on their level of anxiety, such that the higher their level of addiction, the higher is their level of anxiety (Beta=.46). The results also showed that video game addiction has an indirect influence on the level of anxiety, being mediated by self-regulation. This means that the higher the respondents' level of video game addiction, the higher their reported level of self-regulation (Beta=.34), and the higher is their reported level of anxiety (Beta=.35). The results also showed that there was no indirect influence of video game addiction on anxiety, being mediated by social support. However, video game addiction has a positive influence on social support.

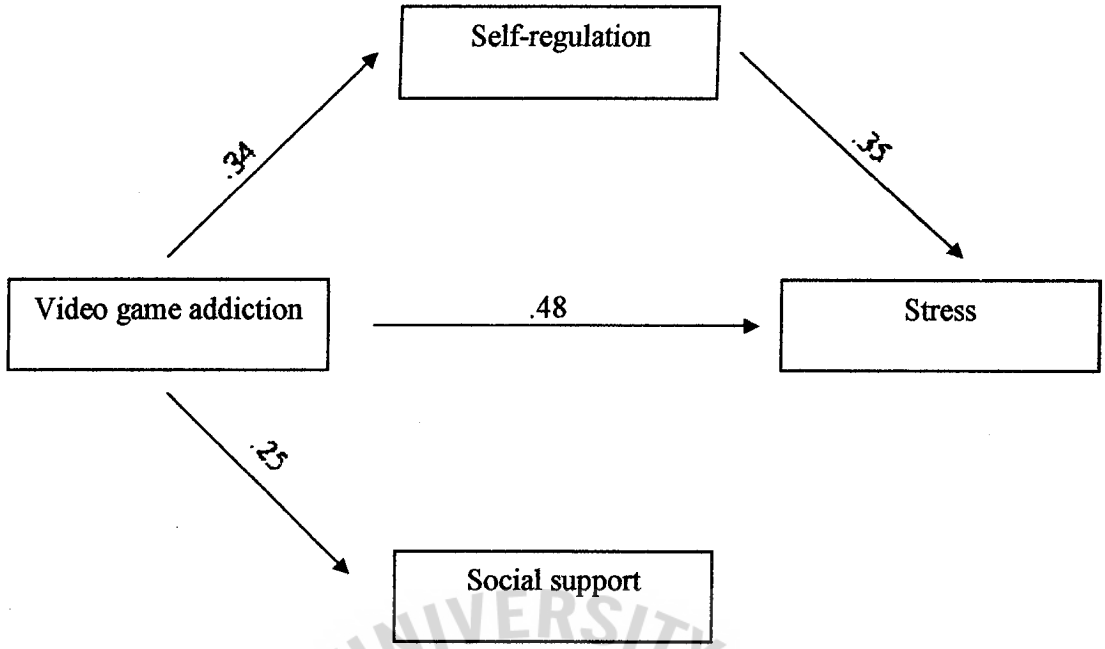

Figure 4. Path model of stress as a function of the direct and indirect influences of video game addiction, being mediated by self-regulation and social support.

The results showed that the respondents' level of video game addiction has a direct influence on their level of stress, such that the higher the level of addiction, the higher is their level of stress (Beta=.48). The results also showed that video game addiction has an indirect influence on the level of stress, being mediated by self-regulation. This means that the higher the respondents' level of video game addiction, the higher their reported level of self-regulation (Beta=.34), and the higher is their reported level of stress (Beta=.35). The results also showed that there is no indirect influence of video game addiction on stress, being mediated by social support. However, video game addiction has a positive influence on social support.

CHAPTER V

Discussion

The present study examined the direct and indirect influences of video game addiction on Thai adolescents' levels of depression, anxiety, and stress, being mediated by self-regulation and social support. A total of 200 Thai adolescents participated in the study by filling in a survey questionnaire (in Thai) designed to measure the study's primary variables of video game addiction, depression, anxiety, stress, self-regulation, and social support.

This chapter contains four sections which are presented in the following order: (1) summary and discussion of findings, (2) limitations of the study, (3) conclusions and implications, and (4) recommendations and avenues for future research.

Summary and Discussion of Findings

Video game addiction.

The results revealed that the factor of 'video game addiction' was rated above the midpoint on its scale. It can be gleaned from this result that the respondents were, most likely, addicted to video games. This finding is supported by the Thai Department of Mental Health's report which stated that there are 2.5 million video game addicted children out of a population of 18 million children in the country, and that the number of addicted children has been growing constantly from 13.3% in the year 2007 to 14.4% in the year 2012 (Manager.co.th, 2013). Lemmens et al. (2010) asserted that video games have become a part of adolescents' life. At the present time, video games can be played almost everywhere from mobile phones (Van Rooij, 2011), tablets, computers, consoles, and the Internet (Chan & Rabinowitz, 2006). Adolescents play such games for many

reasons, but mostly for entertainment, relaxation, emotional coping, escape from reality, satisfying interpersonal and social needs, need for rewards and achievements, need for challenge and excitement, and need for power or sense of control (Wan & Chiou, 2006). It is no wonder that in Thailand, where adolescents prefer to play video games rather than engage in more useful activities such as reading or sports (Sota, 2011), youths face the risk of video game addiction (Phuphaibul et al., 2005).

Video game addiction and the other key variables of the study. The results showed that the respondents' level of video game addiction has a direct influence on their level of depression, anxiety, and stress. The current finding – the higher the level of video game addiction, the higher is the level of depression, anxiety, and stress – had been pointed out by earlier researchers (e.g., Gentile et al., 2011; Gordon, 2011; Tiwari & Ruhela, 2012). According to Langley (2010), pathological gamers tend to experience depression, among others. Gordon (2011) argued that children who are addicted to video games spend more time playing than others and when they become pathological players, they may experience depression and anxiety, among others, a finding that mirrors Gentile et al.'s (2011) statement that depression, anxiety, and other negative outcomes may be further consequences of pathological gaming (Gentile et al., 2011). Video games can also help an individual escape from stressful situations in daily life (King & Delfabbro, 2009). Pathological gamers may perceive that playing video games excessively can be rewarding and an effective way of coping with stress (Weinstein, 2010).

The current results also showed that video game addiction has an indirect influence on the level of anxiety, being mediated by self-regulation, suggesting that the higher their reported level of video game addiction, the higher the respondents' levels of self-regulation and subsequently the higher the level of anxiety. One reason for this finding could be that Thai adolescents with a high level of self-regulation have good skills in time

management and are able to find more time to play video games. As they finish their daily activities such as home work or household chores, they may stay up late or even wake up earlier to play video games, despite less time to sleep or rest. The current finding, however, is not consistent with that of Seay et al. (2007) who reported that individuals with high self-regulation tend to have lower risk of problematic gaming. By the same token, Junmukda and Natirutthakorn (2007) argued that the high risk of game addiction among Thai children may be due to low self-regulation. Perhaps further exploration of these variables is needed to obtain more definitive results.

This study also demonstrated that video game addiction has a positive influence on social support such that the higher the level of video game addiction, the higher the level of social support. This result may be partly explained by the observation that since Thai society is collectivistic in nature, children who addicted to video game may gain forms of social support in Thai society that contributes to video game addiction such as grouping with friends who also play video games, parents who willingly buy video games for children not realizing that they may contribute to their children's video game addiction indirectly and unable to control their children from excessive playing (King & Delfabbro, 2009). Furthermore, the same authors argued that many Thai adolescents seek social support from online video games because they cannot find this in the real world; thus, they face a high risk of developing video game addiction (King & Delfabbro, 2009).

Depression, anxiety, and stress.

The results of descriptive statistics showed that Thai adolescents rated the factors of depression, anxiety, and stress above the midpoint on their respective scales. Thus, in addition to being reportedly addicted to video games, they are also reportedly depressed, anxious, and stressed. Apparently, their levels of depression, anxiety, and stress are influenced by their level of video game addiction such that the stronger the addiction, the

higher their levels of depression, anxiety, and stress. As pointed out by Gentile et al. (2011), people who play video games excessively have higher chances of becoming more depressed. Gordon (2011) also suggested that addicted gamers have higher chances of becoming anxious and developing social phobias. In many cases, adolescents may use video games as a means to cope with stressful situations in their daily lives (Wood & Griffiths, 2007; King & Delfabbro, 2009). The reported video game addiction among Thai adolescents may have stemmed from advancement in technology, such that when new technology (e.g., smart phones, tablets, etc) entered the market, people gained easy access to online games which they found attractive; hence, the greater tendency to get addicted (Lo et al., 2005; Gentile et al., 2011; Loton, 2012). When Thai adolescents become addicted to video games, they will suffer from many negative consequences such as wasting time and money, poor performance in school, inadequate sleep, and negative relationships in the family (Sota, 2011). These negative consequences are bound to trigger negative psychological states such as depression, anxiety, and stress.

This study also showed that the higher the reported level of video game addiction, the higher the reported level of self-regulation and the higher the reported levels of depression, stress, and anxiety. As pointed out by Bandura and associates (2003), self-regulation is based on three steps consisting of self-observation, self-evaluation, and self-consequation. In light of this, Thai adolescents may feel that time spent on video games is always more than they intended to and may feel guilty because of their uncontrollable behavior; this guilt may give rise to symptoms of depression, stress, and anxiety. Moreover, adolescents with a high level of self-regulation can find more time to play video games and this could be one of the factors contributing to video game addiction.

Another result suggested that high level of video game addiction accompanied by high level of social support may lower the person's level of depression. Social support, in

certain ways, could be the cause of video game addiction. For example, being convinced by close friends or permissive parents can lead some adolescents to blindly buy the latest models of mobile phones or tablets that can play video games, spend a lot of money playing video games at Internet cafes or shopping malls, or buy the latest video game consoles. It is not unusual that social support may contribute to a high level of video game addiction, according to Supaket, Munsawaengsub, Nanthamongkolchai, and Apinuntavetch (2008) who asserted that friends influence Thai adolescents more than their families. In addition, social support, both tangible and intangible, can reduce the level of negative psychological symptoms such as depression, as pointed out by Longman et al., (2009). Thai families are normally collectivistic, in which parents look after their children closely and Thai adolescents usually gain social support from their friends who they sometimes spend more time with, more than their family members. This high level of social support can reduce depression in Thai adolescents, in spite of their excessive predilection for online video games.

Self-regulation.

The current study demonstrated that the factor of self-regulation was rated above the midpoint on its scale, indicating that Thai adolescents have high level of self-control, or the ability to control one's desire to respond (Baumeister et al., 2007); also that they appear to have the ability to develop, implement, and flexibly maintain planned behavior in order to achieve one's goals. A justification for this finding is the fact that, since most Thai adolescents attend high schools and universities, they need to have high level of self-regulation in order to study effectively and move on to higher education levels, as dictated by societal standards.

The results also showed that Thai adolescents who reported having a high level of self-regulation also have a high level of video game addiction. A likely explanation for this

could, perhaps, be that adolescents with a high level of self-control and self-monitoring can manage time effectively (Seay et al., 2007). After they have finished their daily tasks or home work, they are confident that they can allocate more time for video games. Moreover, most Thai adolescents prefer video games more than other activities (Sota, 2011); hence, instead of reducing time spent on video games, they prefer to spend more time playing them.

Furthermore, the results of this study revealed that Thai adolescents with reportedly high level of self-regulation also have high levels of depression, anxiety, and stress. Seay and associates (2007) explained video games and self-regulation, based on Bandura et al.'s (2003) perspectives on self-observation, self-evaluation, and self-response. Self-observation occurs when a gamer is aware of the amount of time he or she spends on video games. Self-evaluation takes place when the gamer compares the amount of time he or she spends playing games with that of friends or other players. This is followed by self-response which can be a punishment or reward, depending on the thoughts of the individual on self-evaluation. Thai adolescents may realize that they spend more time on video games than they should, but decide to continue; and when they realize that they are playing excessively, they end up using self-response to punish themselves with feelings of guilt; this guilt component can lead to the experience of depression, anxiety, and stress.

Social support.

The results of this study showed that the factor of social support was rated above the midpoint on its scale, indicating that Thai adolescents have high level of social support in their lives. With Thai society being collectivistic, adolescents are bound to have a lot of support from parents and siblings, extended family, teachers and, more so, from friends and peers. It was also found that the higher the level of video game addiction, the higher the level of social support. Social support may be seen to contribute towards video game

addiction in situations when parents buy computers, tablets, or mobile phones for their children without realizing that such devices have video game applications. Supaket et al. (2008) asserted that Thai adolescents are influenced more by friends than by family members and teachers. Those who are quite accustomed to new technology tend to spend most of their time with their friends; it is not unusual to see youths being strongly influenced by friends who, themselves, are addicted to online gaming or other activities related to video games. It comes as no surprise that the more the adolescents become hooked on video games, the more friends they gain; thus, the higher their level of social support.

The results showed that social support can be a powerful mediator between video game addiction and level of depression among Thai adolescents. More specifically, there was evidence to the effect that in spite of being addicted to video games, Thai youths' level of depression can be lowered or decreased by having more support from significant people. This can be partly explained in that addicted gamers with strong relationships have protective factors against negative psychosocial consequences such as depression (Van Rooij, 2011). Many researchers suggested that social support is a very important factor for the well-being of people. It significantly helps people to cope with stressors more successfully and overcome negative aspects in their lives (Dollete, Steese, Philips, & Matthew, 2004; Clark, 2005). In a similar vein, Cutrona and Russell (1987) proposed that people with high level of social support suffer less from negative outcomes, both physical and psychological.

Limitations of the Study

Before discussing the implications of the current study's findings, some limitations of this study should be noted. First, the path analysis conducted to test the study's research

hypotheses was essentially correlational and not experimental; that is, the study did not involve the manipulation of the primary variables. As such, the path analytic results can only be interpreted in terms of relationships and not in terms of causality. For example, while the study's findings showed that there are significant relationships between video game addiction, depression, anxiety, and stress, no causality can be drawn in the sense that the adolescents' addiction to video games caused their states of depression, anxiety, and stress. The correlational nature of this study precluded such a conclusion. Second, although the scales employed in the present study (GAS, DASS-21, SRQ, and SPS) were shown to be reliable, these scales have not yet been fully validated with Thai adolescents. Since these scales were developed and standardized based on English native speakers' responses, their construct validity when applied to non-English speakers such as Thai adolescents is suspect. Future research should be directed at testing the psychometric properties of these scales when applied to non-English speakers to ensure that they are not only reliable but that they actually measure what they have been designed to measure and are applicable within different social contexts. Third, this study was conducted with Thai adolescents in one particular area of Thailand (Bangkok); thus, the findings may be specific only to this group of adolescents. Given the population targeted for the present study and the convenience sampling technique employed, the findings may have little external validity beyond the boundaries of the targeted population. As such, care must be taken when generalizing the present study's findings to other Thai adolescents in different parts of Thailand and beyond. Fourth, the truthfulness with which the Thai adolescents responded to some of the study's questionnaire is suspect. They could have chosen their responses in the self-regulation and social support questionnaires carefully to show that they have higher responsibility or higher social support than what they really have, by unintentionally employing defense mechanisms in order to keep their self-esteem high.

Finally, the study was limited to adolescents between 18-20 years of age. There are still many people in different age groups who also play video games such as children and adults who may have other reasons for playing video games. Furthermore, the sample represented mostly male adolescents; it can, thus, be said that the results are skewed in favor of males. Further exploratory studies involving other demographic characteristics might give more insights about video game addiction and its impact on the selected variables.

The findings of the current study should be interpreted with some caution because of some intervening or limiting factors beyond the scope of this study. Nonetheless, despite some identified limitations, it is anticipated that this study would provide valuable knowledge and database for a number of individuals and groups who are involved in promoting good mental health among the vulnerable members of society such as adolescents. The contribution of this study towards expansion of the literature cannot be overemphasized.

Conclusions and Implications

Keeping the above limitations in mind, there are a number of important conclusions and implications arising from the study's findings. First, it is concluded that many Thai adolescents are addicted to video games, and that this addiction directly impacts on the negative psychological states of depression, anxiety, and stress. Adolescents in Thailand are, apparently, spending more and more time playing video games instead of engaging in more useful activities such as studying or playing sports. This predilection for video gaming will very likely increase their risk for full-blown depression, anxiety, and stress, if not regulated or controlled. It is very important that Thai adolescents should try to control their time spent on video games or that helpful interventions be implemented to prevent

addiction because, as inferred from the results of this study, the higher the level of video game addiction, the higher the level of depression, anxiety, and stress. Second, it is concluded that social support can help reduce the level of depression among Thai adolescents who are addicted to video games. It had been established that people who have high level of social support suffer less from negative outcomes, both physical and psychological. Social support in a collectivistic society such as Thailand can reduce negative psychological symptoms because high level of social support enables individuals to cope better with problems and overcome negative aspects in their life, as demonstrated in earlier studies. The importance of seeking help and advice not only from helping professionals in times of difficulties but, in the first instance, from people one can trust such as parents and siblings, religious leaders, teachers, and friends should be discussed at school, infused in the curriculum, emphasized in mass media, and so on. In this way, young people are encouraged to disclose their personal issues to someone they trust, instead of keeping things to themselves until they implode emotionally.

Recommendations and Avenues for Future Research

For Thai adolescents.

This study revealed that the higher the level of video game addiction, the higher the level of depression, anxiety, and stress. In addition, playing video games excessively can lead to other negative consequences such as poor academic performance, lack of sleep and not having enough rest, waste of money, and social incompetence. It is recommended that Thai adolescents learn to regulate/control their actions, avoid playing excessively, and try to engage in more beneficial activities such as sports, reading, and socializing. Additionally, this study showed that the higher the level of video game addiction, the higher the level of self-regulation. This may be due to the desire to play video games as

much as possible. Having a high level of self-regulation can be advantageous only if Thai adolescents can divert their attention from video games to more useful activities.

For the parents and extended family of Thai adolescents.

The results of this study indicated that social support can help reduce the level of depression. It is recommended, therefore, that people around addicted adolescents monitor them closely and give necessary advice and support, with a view to preventing or reducing the experience of depression. At the same time, social support can also initiate video game addiction in situations when, for example, parents blindly buy for their children all kinds of hi-tech gadgets such as smart phones and tablets that can be used to play video games. Thus, parents should be wary of the dangers of some technological advances, referred to as the paradox of 21st century living.

For the friends of Thai adolescents addicted to video games.

Friends are a form of social support that has the highest impact in an adolescent's life; that is, most adolescents usually emulate their friends' behaviors. Close friends can be an effective source of help and support, especially when there is a mutual attempt to veer away from the dangers of video game addiction. It is very important that adolescents be aware of the paradox that despite the enjoyment, spending too much time on video games can lead to a variety of negative consequences. Friends of adolescents addicted to video games should try to convince their addicted friend(s) to focus their energy on other more beneficial activities such as education or sports, and take the lead in engaging in more profitable recreational activities.

Avenues for future research.

The present study has successfully met its objective – to investigate the prevalence of video game addiction among Thai adolescents and its impact on depression, anxiety, and stress, being mediated by self-regulation and social support. The findings clearly

pointed out that video game addiction affected Thai adolescents' level of depression, anxiety, stress, self-regulation, and social support. The present study has limitations in methodology, instrumentation, and population which draw attention to the need to conduct more research in the future, particularly on the antecedents and consequences of video game addiction within the Thai setting. This is due to the fact that video games, as part and parcel of modern technology, develops very fast and has become a part of day-to-day existence. Future research can take a qualitative approach that would allow for more in-depth investigation of the primary variables of the study. While the quantitative design employed in the present study has its own advantages such as convenience, low-cost, ease of administration, and availability of statistical programs, it offers little insight as to why Thai adolescents are addicted to video games, why are they depressed, anxious, and stressed, or why have they not sought help from significant people, and so on. A longitudinal approach aimed at the same or different set of objectives would establish new findings in terms of long-term effects of video game addiction and its impact on the same or related variables. Unquestionably, the topic of video game addiction remains a fertile one for further conceptual development and empirical investigation.

Video games, as part of the new wave of technology, has impacted the world and, on a local note, has become more and more popular in Thai society, especially among adolescents. It offers many benefits such as fun, enjoyment, relaxation, and challenge; at the same time, however, excessive video gaming may lead to addiction and other problems, both psychological and physical. It is important to raise Thai people's awareness of the dangers of video game addiction and its consequences. In this connection, this researcher recommends that helping professionals (school psychologists, counselors, medical professionals, social workers, teachers, community leaders, etc.) who are concerned with the welfare of adolescents should take the initiative to create and

implement interventions aimed at alleviating the problem of video gaming addiction. Considering the exponential rise in numbers with the passage of time, certain options are offered: hospitals and clinics with outpatient treatment services for video game and related addictions, addiction rehabilitation centers, college campus support groups, private group therapy facilities, and suchlike. Moreover, through a more mindful approach, perhaps concerned parents, teachers, professionals, and the youth themselves should attempt to take a proactive stance in preventing further incidence of pathological video gaming.

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APPENDIX A

Survey Questionnaire (English Version)

Dear Participant,

The purpose of this survey is to investigate the impact of video game addiction on Thai adolescents.

The questionnaire below is completely anonymous and the answers you provide will be used for the purpose of research only. Your answers will be combined with those of all the other people surveyed and no one will possibly be able to tell how any one person responded.

We want to estimate the general feeling of all people on this issue. Therefore, it is *your answers that we want rather than other's people's opinion that you have heard or read* about. There is **no** right or wrong answers. Please answer all questions as honestly as you can.

Thank you for your cooperation.

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Part I. Personal Information

For each of the following items, please tick (✓) the appropriate space.

1. Gender — Male ___ Female ___

2. Age — 18–20 ___

3. Education Level — High School ___ University ___

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Part II. GAS

Directions: Please consider each of the statements listed below and then decide how often during the last 6 months the situation described in that statement applies to you. Using the rating scale below, please circle the number that best reflects your opinion. There are no right or wrong answers.

0 = Never

1 = Rarely

2 = Sometimes

3 = Often

4 = Very Often

1	Did you think about playing a game all day long?	0	1	2	3	4
2	Did you spend increasing amount of time on games?	0	1	2	3	4
3	Did you play games to forget about real life?	0	1	2	3	4
4	Have others unsuccessfully tried to reduce your game use?	0	1	2	3	4
5	Have you felt bad when you were unable to play?	0	1	2	3	4
6	Did you have fights with others (e.g., family, friends) over your time spent on games?	0	1	2	3	4
7	Have you neglected other important activities (e.g., school, work, sports) to play games?	0	1	2	3	4

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Part III. DASS-21

Directions: Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

0 = Did not apply to me at all

1 = Applied to me to some degree, or some of the time

2 = Applied to me to a considerable degree, or a good part of the time

3 = Applied to me very much, or most of the time

1	I found it hard to wind down.	0 1 2 3
2	I was aware of dryness of my mouth.	0 1 2 3
3	I couldn't seem to experience any positive feeling at all.	0 1 2 3
4	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	0 1 2 3
5	I found it difficult to work up the initiative to do things.	0 1 2 3
6	I tended to over-react to situations.	0 1 2 3
7	I experienced trembling (e.g., in the hands).	0 1 2 3
8	I felt that I was using a lot of nervous energy.	0 1 2 3
9	I was worried about situations in which I might panic and make a fool of myself.	0 1 2 3
10	I felt that I had nothing to look forward to.	0 1 2 3
11	I found myself getting agitated.	0 1 2 3

12	I found it difficult to relax.	0	1	2	3
13	I felt down-hearted and blue.	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing.	0	1	2	3
15	I felt I was close to panic.	0	1	2	3
16	I was unable to become enthusiastic about anything.	0	1	2	3
17	I felt I wasn't worth much as a person.	0	1	2	3
18	I felt that I was rather touchy.	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	0	1	2	3
20	I felt scared without any good reason.	0	1	2	3
21	I felt that life was meaningless.	0	1	2	3

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Part IV. SRQ

Directions: Please answer the following questions by circling the response that best describes how you are. There are no right or wrong answers. Work quickly and don't think too long about your answers.

1 = Strongly disagree

2 = Disagree

3 = Uncertain or unsure

4 = Agree

5 = Strongly agree

1	I usually keep track of my progress toward my goals.	1	2	3	4	5
2	My behavior is not that different from other people.	1	2	3	4	5
3	Others tell me that I keep on with things too long.	1	2	3	4	5
4	I doubt I could change even if I wanted to.	1	2	3	4	5
5	I have trouble making up my mind about things.	1	2	3	4	5
6	I get easily distracted from my plans.	1	2	3	4	5
7	I reward myself for progress toward my goals.	1	2	3	4	5
8	I don't notice the effects of my actions until it's too late.	1	2	3	4	5
9	My behavior is similar to that of my friends.	1	2	3	4	5
10	It's hard for me to see anything helpful about changing my ways.	1	2	3	4	5

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11	I am able to accomplish goals I set for myself.	1	2	3	4	5
12	I put off making decisions.	1	2	3	4	5
13	I have so many plans that it's hard for me to focus on any one of them.	1	2	3	4	5
14	I change the way I do things when I see a problem with how things are going.	1	2	3	4	5
15	It's hard for me to notice when I've "had enough" (food, sweets).	1	2	3	4	5
16	I think a lot about what other people think of me.	1	2	3	4	5
17	I am willing to consider other ways of doing things.	1	2	3	4	5
18	If I wanted to change, I am confident that I could do it.	1	2	3	4	5
19	When it comes to deciding about a change, I feel overwhelmed by the choices.	1	2	3	4	5
20	I have trouble following through with things once I've made up my mind to do something.	1	2	3	4	5
21	I don't seem to learn from my mistakes.	1	2	3	4	5
22	I'm usually careful not to overdo it when working, eating.	1	2	3	4	5
23	I tend to compare myself with other people.	1	2	3	4	5
24	I enjoy a routine, and like things to stay the same.	1	2	3	4	5
25	I have sought out advice or information about changing.	1	2	3	4	5
26	I can come up with lots of ways to change, but it's hard for me to decide which one to use.	1	2	3	4	5
27	I can stick to a plan that's working well.	1	2	3	4	5
28	I usually only have to make a mistake one time in order to learn from it.	1	2	3	4	5
29	I don't learn well from punishment.	1	2	3	4	5
30	I have personal standards, and try to live up to them.	1	2	3	4	5
31	I am set in my ways.	1	2	3	4	5
32	As soon as I see a problem or challenge, I start looking for possible solutions.	1	2	3	4	5

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33	I have a hard time setting goals for myself.	1	2	3	4	5
34	I have a lot of willpower.	1	2	3	4	5
35	When I'm trying to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
36	I usually judge what I'm doing by the consequences of my actions.	1	2	3	4	5
37	I don't care if I'm different from most people.	1	2	3	4	5
38	As soon as I see things aren't going right, I want to do something about it.	1	2	3	4	5
39	There is usually more than one way to accomplish something.	1	2	3	4	5
40	I have trouble making plans to help me reach my goals.	1	2	3	4	5
41	I am able to resist temptation.	1	2	3	4	5
42	I set goals for myself and keep track of my progress.	1	2	3	4	5
43	Most of the time, I don't pay attention to what I'm doing.	1	2	3	4	5
44	I try to be like people around me.	1	2	3	4	5
45	I tend to keep doing the same thing, even when it doesn't work.	1	2	3	4	5
46	I can usually find several different possibilities when I want to change something.	1	2	3	4	5
47	Once I have a goal, I can usually plan how to reach it.	1	2	3	4	5
48	I have rules that I stick by no matter what.	1	2	3	4	5
49	If I make a resolution to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
50	Often, I don't notice what I'm doing until someone calls my attention.	1	2	3	4	5
51	I think a lot about how I'm doing.	1	2	3	4	5
52	Usually, I see the need to change before others do.	1	2	3	4	5

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53	I'm good at finding different ways to get what I want.	1	2	3	4	5
54	I usually think before I act.	1	2	3	4	5
55	Little problems or distractions throw me off course.	1	2	3	4	5
56	I feel bad when I don't meet my goals.	1	2	3	4	5
57	I learn from my mistakes.	1	2	3	4	5
58	I know how I want to be.	1	2	3	4	5
59	It bothers me when things aren't the way I want them.	1	2	3	4	5
60	I call in others for help when I need it.	1	2	3	4	5
61	Before making a decision, I consider what is likely to happen if I do one thing or another.	1	2	3	4	5
62	I give up quickly.	1	2	3	4	5
63	I usually decide to change and hope for the best.	1	2	3	4	5

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Part V. SPS

Directions: In answering the next set of questions, think about your current relationships with friends, family members, co-workers, community members, and so on. Using the rating scale below, please circle the number that best reflects your opinion. There are no right or wrong answers.

1 = Strongly disagree

2 = Disagree

3 = Uncertain or unsure

4 = Agree

5 = Strongly agree

1	There are people I can depend on to help me if I really need it.	1	2	3	4	5
2	I feel that I do not have close personal relationships with other people.	1	2	3	4	5
3	There is no one I can turn to for guidance in times of stress.	1	2	3	4	5
4	There are people who depend on me for help.	1	2	3	4	5
5	There are people who enjoy the same social activities I do.	1	2	3	4	5
6	Other people do not view me as competent.	1	2	3	4	5
7	I feel personally responsible for the well-being of another person.	1	2	3	4	5
8	I feel part of a group of people who share my attitudes and beliefs.	1	2	3	4	5

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9	I do not think other people respect my skills and abilities.	1	2	3	4	5
10	If something went wrong, no one would come to my assistance.	1	2	3	4	5
11	I have close relationships that provide me with a sense of emotional security and well-being.	1	2	3	4	5
12	There is someone I could talk to about important decisions in my life.	1	2	3	4	5
13	I have relationships where my competence and skills are recognized.	1	2	3	4	5
14	There is no one who shares my interests and concerns.	1	2	3	4	5
15	There is no one who really relies on me for their well-being.	1	2	3	4	5
16	There is a trustworthy person I could turn to for advice if I were having problems.	1	2	3	4	5
17	I feel a strong emotional bond with at least one other person.	1	2	3	4	5
18	There is no one I can depend on for aid if I really need it.	1	2	3	4	5
19	There is no one I feel comfortable talking about problems with.	1	2	3	4	5
20	There are people who admire my talents and abilities.	1	2	3	4	5
21	I lack a feeling of intimacy with another person.	1	2	3	4	5
22	There is no one who likes to do the things I do.	1	2	3	4	5
23	There are people I can count on in an emergency.	1	2	3	4	5
24	No one needs me to care for them.	1	2	3	4	5

THANK YOU FOR YOUR PARTICIPATION

APPENDIX B

Survey Questionnaire (Thai Version)

จุดประสงค์ของแบบสอบถามฉบับนี้ คือการตรวจสอบความสัมพันธ์ของปัจจัยที่อาจมีผลกระทบต่อวัยรุ่น และอาการติดวีดิโอเกม ข้อมูลที่เรากำลังค้นหาจะช่วยให้เราสามารถทำความเข้าใจผลกระทบเหล่านี้ต่อปัจจัยต่างๆ

แบบสอบถามด้านล่างนี้ไม่ต้องกรอกชื่อ หรือ นามสกุล และ คำตอบที่คุณเลือก จะถูกใช้ในการวิจัยเท่านั้น คำตอบทั้งหมดจะถูกนำมารวมกัน และจะไม่มีใครสามารถบอกได้ ว่าแบบสอบถามฉบับไหนคือคำตอบของคุณ

เราต้องการทราบความรู้สึกของบุคคลโดยทั่วไปเกี่ยวกับประเด็นนี้ ฉะนั้นเราต้องการคำตอบโดยแท้จริงจากคุณ มากกว่า ความเห็นของผู้อื่นที่คุณเคยได้ยิน หรือ อ่าน คำตอบเหล่านี้ไม่มีถูกหรือผิด กรุณาตอบจากใจจริง เท่าที่คุณสามารถตอบได้

ขอบคุณสำหรับความร่วมมือ

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<u>ส่วนที่ 1 ข้อมูลส่วนตัว</u>

กรุณากรอกเครื่องหมาย (✓) ลงในช่องว่างตามความเหมาะสม

1. เพศ ชาย_____

หญิง_____

2. อายุ 18-20 ปี_____

3. การศึกษา มัธยมศึกษา_____

มหาวิทยาลัย_____

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ส่วนที่ 2 GAS

กรุณาพิจารณาประโยคด้านล่าง แล้วเลือกว่าใน 6 เดือนที่ผ่านมา เหตุการณ์ดังกล่าวเกิดขึ้นกับคุณบ่อยแค่ไหน

กรุณาวงกลมตัวเลือกที่ตรงกับความคิดเห็นของคุณมากที่สุด คำตอบไม่มีถูกหรือผิด

0 = ไม่เคย

1 = นานๆครั้ง

2 = บางครั้ง

3 = บ่อยๆ

4 = บ่อยมาก

1	คุณคิดถึงการเล่นเกมตลอดทั้งวัน?	0	1	2	3	4
2	คุณใช้เวลามากขึ้นเรื่อยๆในการเล่นเกม?	0	1	2	3	4
3	คุณเล่นเกมเพื่อที่จะพยายามลืมชีวิตจริงหรือเปล่า?	0	1	2	3	4
4	บุคคลอื่นพยาพยามลดเวลาเล่นเกมของคุณ แต่ไม่สำเร็จหรือไม่?	0	1	2	3	4
5	คุณรู้สึกอารมณ์ไม่ดีหรือไม่ เมื่อไม่ได้เล่นเกม?	0	1	2	3	4
6	คุณเคยทะเลาะกับบุคคลอื่น (เพื่อน, คนในครอบครัว) เกี่ยวกับเวลาที่คุณใช้ในการเล่นเกมหรือไม่?	0	1	2	3	4
7	คุณเคยละทิ้งกิจกรรมสำคัญอื่นๆ (โรงเรียน, งาน, กีฬา) เพื่อไปเล่นเกมหรือไม่?	0	1	2	3	4

ส่วนที่ 3 DASS-21

กรุณาอ่านและพิจารณาแต่ละประโยค แล้วพิจารณาดูว่าสถานการณ์ที่เกิดขึ้นนั้น เกี่ยวข้องอย่างไรกับตัวของท่านในช่วงอาทิตย์ที่ผ่านมา โปรดวงกลมข้อที่ตรงกับความคิดของตัวท่านมากที่สุด แบบทดสอบนี้ไม่มีคำตอบที่ถูกหรือผิด

0 = ไม่ตรงกับตัวข้าพเจ้า

1 = เกี่ยวข้องกับข้าพเจ้าเพียงเล็กน้อย ในบางครั้ง

2 = เกี่ยวข้องกับข้าพเจ้าในระดับหนึ่ง ในหลายๆครั้ง

3 = เกี่ยวข้องกับข้าพเจ้าอย่างมาก เกือบตลอดเวลา

1	ข้าพเจ้ารู้สึกว่ามันยากที่จะปล่อยวาง	0	1	2	3
2	ข้าพเจ้ารู้สึกว่าริมฝีปากแห้ง	0	1	2	3
3	ข้าพเจ้าไม่ค่อยมีความรู้สึกทางด้านบวกสักเท่าไหร่	0	1	2	3
4	ข้าพเจ้ารู้สึกหายใจลำบาก (หอบ หรือ หายใจไม่ออก)	0	1	2	3
5	ข้าพเจ้ารู้สึกยากลำบาก ในการที่จะเริ่มต้นทำอะไรสักอย่าง	0	1	2	3
6	ข้าพเจ้ามักจะทำเกินกว่าเหตุเสมอ	0	1	2	3
7	บางครั้งข้าพเจ้าเคยตัวสั่น	0	1	2	3
8	ข้าพเจ้ารู้สึกเป็นกังวลอย่างมาก	0	1	2	3
9	ข้าพเจ้ารู้สึกเป็นกังวลในสถานการณ์ที่ข้าพเจ้าอาจตื่นตระหนก และแสดงออกอย่างโง่ๆ	0	1	2	3
10	ข้าพเจ้ารู้สึกว่าไม่มีอะไรที่น่าจะตั้งตารอ	0	1	2	3
11	ข้าพเจ้ารู้สึกเหมือนโดนแกล้งปั่นหัว	0	1	2	3

12	ข้าพเจ้ารู้สึกยากที่จะผ่อนคลาย	0	1	2	3
13	ข้าพเจ้ารู้สึกเซื่องซึม และ เศร้าใจ	0	1	2	3
14	ข้าพเจ้าจะไม่อดทนกับเรื่องอะไรที่มาขัดจังหวะในสิ่งที่ข้าพเจ้ากำลังทำอยู่	0	1	2	3
15	ข้าพเจ้ารู้สึกว่าจะตื่นตระหนก	0	1	2	3
16	ข้าพเจ้าไม่สามารถมองโลกในแง่ดีได้	0	1	2	3
17	ข้าพเจ้ารู้สึกว่าข้าพเจ้าไม่มีคุณค่าความเป็นมนุษย์ซักเท่าไหร่	0	1	2	3
18	ข้าพเจ้ารู้สึกขี้งอน	0	1	2	3
19	ข้าพเจ้ารู้สึกได้ถึงการเต้นของหัวใจของข้าพเจ้า (หัวใจเต้นแรง, หยุดเต้นไปชั่วขณะ)	0	1	2	3
20	ข้าพเจ้ารู้สึกกลัวโดยไม่มีเหตุผล	0	1	2	3
21	ข้าพเจ้ารู้สึกว่าใช้ชีวิตอย่างไร้ค่า	0	1	2	3

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ส่วนที่ 4 SRQ

กรุณาตอบคำถามต่อไปนี้โดยวงกลมตัวเลือกที่ตรงกับความคิดเห็นของคุณมากที่สุด กรุณาตอบคำถามอย่างรวดเร็ว และอย่าคิดมากเกินไปกับคำตอบของคุณ คำตอบไม่มีถูกหรือผิด

1 = ไม่เห็นด้วยอย่างยิ่ง

2 = ไม่เห็นด้วย

3 = ไม่แน่ใจ

4 = เห็นด้วย

5 = เห็นด้วยอย่างยิ่ง

1	ข้าพเจ้าคอยติดตามความคืบหน้าในการบรรลุวัตถุประสงค์เสมอ	1	2	3	4	5
2	พฤติกรรมของข้าพเจ้าไม่แตกต่างจากบุคคลอื่น	1	2	3	4	5
3	ผู้อื่นบอกข้าพเจ้าว่า ข้าพเจ้าใช้เวลากับบางเรื่องนานเกินไป	1	2	3	4	5
4	ข้าพเจ้าไม่แน่ใจว่าจะเปลี่ยนแปลงตัวเองได้ แม้จะต้องการ	1	2	3	4	5
5	ข้าพเจ้ามีปัญหาในการตัดสินใจในเรื่องต่างๆ	1	2	3	4	5
6	ข้าพเจ้ามักจะถูกเบี่ยงเบนความสนใจจากเรื่องที่ตั้งใจจะทำได้โดยง่าย	1	2	3	4	5
7	ข้าพเจ้าให้รางวัลตนเอง เมื่อมีความคืบหน้าในการบรรลุวัตถุประสงค์	1	2	3	4	5
8	ข้าพเจ้าไม่ทันสังเกตผลจากการกระทำของตน จนกระทั่งสายเกินไป	1	2	3	4	5
9	พฤติกรรมของข้าพเจ้าคล้ายกับเพื่อนๆของข้าพเจ้า	1	2	3	4	5
10	มันยากสำหรับข้าพเจ้า ที่จะเห็นสิ่งที่มีประโยชน์จากการเปลี่ยนแปลงสิ่งที่เป็นอยู่	1	2	3	4	5
11	ข้าพเจ้าสามารถบรรลุจุดหมายที่ตั้งไว้	1	2	3	4	5

12	ข้าพเจ้ามักเลื่อนการตัดสินใจ	1	2	3	4	5
13	ข้าพเจ้ามีเรื่องต้องทำมากมายจนยากที่จะตั้งใจทำเรื่องใดเรื่องหนึ่ง	1	2	3	4	5
14	ข้าพเจ้าเปลี่ยนวิธีการทำงาน เมื่อเห็นปัญหาจากวิธีที่กำลังทำอยู่	1	2	3	4	5
15	ยากสำหรับข้าพเจ้าที่จะรู้สึกตัวเมื่อทานอาหาร หรือ ขนม จนอิ่มหรือยัง	1	2	3	4	5
16	ข้าพเจ้าคิดมากว่าผู้อื่นคิดอย่างไรกับตัวข้าพเจ้า	1	2	3	4	5
17	ข้าพเจ้ายินดีที่จะพิจารณาวิธีอื่นในการทำงาน	1	2	3	4	5
18	หากข้าพเจ้าต้องการที่จะเปลี่ยน ข้าพเจ้ามั่นใจว่าสามารถทำได้	1	2	3	4	5
19	เมื่อถึงเวลาที่จะต้องเปลี่ยน ข้าพเจ้ารู้สึกว่าตัวเลือกมีมากเกินไป	1	2	3	4	5
20	ข้าพเจ้ามีปัญหาในการติดตามเรื่องต่างๆที่ข้าพเจ้าตัดสินใจจะทำ	1	2	3	4	5
21	ข้าพเจ้าไม่ค่อยเรียนจากเรื่องที่เคยทำผิด	1	2	3	4	5
22	ข้าพเจ้าระวังที่จะไม่ทำงาน หรือรับประทานมากเกินไป	1	2	3	4	5
23	ข้าพเจ้ามักจะเปรียบเทียบตนเองกับผู้อื่น	1	2	3	4	5
24	ข้าพเจ้าชอบทำเรื่องเดิมๆ และชอบให้สิ่งต่างๆเหมือนเดิม	1	2	3	4	5
25	ข้าพเจ้าขอคำแนะนำเพื่อรับมือกับการเปลี่ยนแปลง	1	2	3	4	5
26	ข้าพเจ้าสามารถหาได้หลายวิธีในการเปลี่ยนแปลงตนเอง แต่รู้สึกลำบากว่าจะเลือกวิธีไหน	1	2	3	4	5
27	ข้าพเจ้าสามารถทำตามแผนที่กำลังไปได้สวย	1	2	3	4	5
28	โดยปรกติข้าพเจ้าทำผิดเพียงครั้งเดียว ก็เรียนรู้ได้	1	2	3	4	5
29	ข้าพเจ้าไม่เรียนรู้จากการถูกทำโทษ	1	2	3	4	5
30	ข้าพเจ้ามีมาตรฐานส่วนตัว และพยามทำตามมาตรฐานนั้น	1	2	3	4	5
31	ข้าพเจ้าอยู่ในวิถีทาง	1	2	3	4	5
32	ทันทีที่ข้าพเจ้าเห็นปัญหาหรือความท้าทาย ข้าพเจ้ามองหาทางแก้ทันที	1	2	3	4	5
33	ข้าพเจ้ารู้สึกลำบากที่จะตั้งเป้าหมายให้ตัวเอง	1	2	3	4	5
34	ข้าพเจ้ามีความตั้งใจสูงมาก	1	2	3	4	5
35	เมื่อข้าพเจ้าพยามที่จะเปลี่ยนอะไร ข้าพเจ้าตั้งใจอย่างมาก	1	2	3	4	5

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36	ข้าพเจ้าตัดสินสิ่งที่ข้าพเจ้ากระทำ จากผลลัพธ์ของการกระทำ	1	2	3	4	5
37	ข้าพเจ้าไม่สนใจว่าข้าพเจ้าแตกต่างจากคนอื่น	1	2	3	4	5
38	ทันทีที่ข้าพเจ้าเห็นว่ามีเรื่องไม่ถูกต้อง ข้าพเจ้าต้องการจะทำบางสิ่งกับเรื่องนั้น	1	2	3	4	5
39	มักจะมีมากกว่า 1 วิธีเสมอ ในการทำเรื่องใดๆ	1	2	3	4	5
40	ข้าพเจ้าประสบปัญหาในการกำหนดแผนเพื่อที่จะบรรลุเป้าหมาย	1	2	3	4	5
41	ข้าพเจ้าสามารถทนแรงยั่วยุได้	1	2	3	4	5
42	ข้าพเจ้าตั้งเป้าหมายให้ตนเอง และคอยติดตามความคืบหน้าเสมอ	1	2	3	4	5
43	ส่วนใหญ่ข้าพเจ้าไม่ค่อยสนใจในสิ่งที่กำลังทำอยู่	1	2	3	4	5
44	ข้าพเจ้าพยามทำตัวให้เหมือนผู้คนรอบข้าง	1	2	3	4	5
45	ข้าพเจ้ามักจะทำเรื่องเดิมซ้ำๆ แม้จะรู้ว่าไม่ได้ผล	1	2	3	4	5
46	ข้าพเจ้ามักจะพบความเป็นไปได้มากมาย เมื่ออยากเปลี่ยนแปลงบางสิ่ง	1	2	3	4	5
47	เมื่อข้าพเจ้าต้องการบรรลุจุดหมาย ข้าพเจ้าสามารถวางแผนการได้เสมอๆ	1	2	3	4	5
48	ข้าพเจ้ามีกฎที่จะทำตามเสมอ ไม่ว่าจะอย่างไรก็ตาม	1	2	3	4	5
49	หากข้าพเจ้าตั้งใจที่จะเปลี่ยนแปลงอะไร ข้าพเจ้าจะตั้งใจอย่างมาก	1	2	3	4	5
50	ข้าพเจ้ามักไม่ได้สังเกตว่ากำลังทำอะไร จนกระทั่งมีคนทักข้าพเจ้า	1	2	3	4	5
51	ข้าพเจ้าคิดมากกับสิ่งที่ข้าพเจ้าทำ	1	2	3	4	5
52	ปรกติข้าพเจ้าเห็นความจำเป็นที่จะต้องเปลี่ยนก่อนผู้อื่น	1	2	3	4	5
53	ข้าพเจ้าเก่งในการหาทางต่างๆ เพื่อให้ได้สิ่งที่ต้องการ	1	2	3	4	5
54	ข้าพเจ้าคิดก่อนทำ	1	2	3	4	5
55	ปัญหาเล็กน้อย หรือ เรื่องเบี่ยงเบนความสนใจ ทำให้ข้าพเจ้าหลงจากสิ่งที่ทำ	1	2	3	4	5
56	ข้าพเจ้ารู้สึกไม่ดีเมื่อไม่สามารถบรรลุเป้าหมาย	1	2	3	4	5
57	ข้าพเจ้าเรียนจากความผิดพลาด	1	2	3	4	5
58	ข้าพเจ้ารู้ในสิ่งที่ข้าพเจ้าอยากจะเป็น	1	2	3	4	5

59	ข้าพเจ้ารู้สึกรำคาญใจเมื่อสิ่งต่างๆ ไม่เป็นอย่างที่ต้องการ	1	2	3	4	5
60	ข้าพเจ้าขอความช่วยเหลือจากผู้อื่นเมื่อจำเป็น	1	2	3	4	5
61	ก่อนตัดสินใจทำเรื่องใดๆ ข้าพเจ้าพิจารณาถึงสิ่งที่อาจเกิดขึ้น หากข้าพเจ้าทำเรื่องใดเรื่องหนึ่ง	1	2	3	4	5
62	ข้าพเจ้ายอมแพ้อย่างรวดเร็ว	1	2	3	4	5
63	ข้าพเจ้ามักจะตัดสินใจที่จะเปลี่ยนแปลง และหวังในผลลัพธ์ที่ดีเสมอ	1	2	3	4	5

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ส่วนที่ 5 SPS

ในการตอบคำถามต่อไปนี้ กรุณาคิดถึงความสัมพันธ์ในปัจจุบันของคุณ กับ เพื่อน, ครอบครัว, เพื่อนร่วมงาน, คนในชุมชน ฯลฯ กรุณาวงกลมตัวเลือกที่ตรงกับความคิดเห็นของคุณมากที่สุด คำตอบไม่มีถูกหรือผิด

1 = ไม่เห็นด้วยอย่างยิ่ง

2 = ไม่เห็นด้วย

3 = ไม่แน่ใจ

4 = เห็นด้วย

5 = เห็นด้วยอย่างยิ่ง

1	มีบุคคลที่ข้าพเจ้าพึ่งพาได้เสมอ หากข้าพเจ้าต้องการความช่วยเหลือ	1	2	3	4	5
2	ข้าพเจ้ารู้สึกว่าไม่ได้มีความสัมพันธ์ใกล้ชิดกับคนทั่วไป	1	2	3	4	5
3	ในเวลาที่ข้าพเจ้ารู้สึกเครียด ข้าพเจ้าไม่สามารถพึ่งผู้ใดได้	1	2	3	4	5
4	มีคนที่ต้องการความช่วยเหลือจากข้าพเจ้า	1	2	3	4	5
5	มีคนที่ชอบกิจกรรมทางสังคมเช่นเดียวกับข้าพเจ้า	1	2	3	4	5
6	คนอื่นๆมองว่าข้าพเจ้าเป็นคนไร้ความสามารถ	1	2	3	4	5
7	ข้าพเจ้ารู้สึกมีส่วนรับผิดชอบในความเป็นสุขของผู้อื่น	1	2	3	4	5
8	ข้าพเจ้ารู้สึกเป็นส่วนหนึ่งในกลุ่มมคนที่มีความคิด และความเชื่อในสิ่งเดียวกัน	1	2	3	4	5
9	ข้าพเจ้าไม่คิดว่าผู้อื่นยอมรับในทักษะ และความสามารถของข้าพเจ้า	1	2	3	4	5
10	ถ้ามีเรื่องใดๆผิดพลาด จะมีคนมาขอความช่วยเหลือจากข้าพเจ้า	1	2	3	4	5
11	ข้าพเจ้ามีความสัมพันธ์ใกล้ชิด ที่ทำให้ข้าพเจ้ารู้สึกมั่นคง และมีความสุขดี	1	2	3	4	5

12	มีบุคคลที่ข้าพเจ้าสามารถปรึกษาเกี่ยวกับการตัดสินใจในเรื่องสำคัญของชีวิตข้าพเจ้าได้	1	2	3	4	5
13	ข้าพเจ้ามีความสัมพันธ์ที่ทักษะ และ ความสามารถของข้าพเจ้าเป็นที่ยอมรับ	1	2	3	4	5
14	ไม่มีบุคคลใดที่จะมาแบ่งปันความสนใจ และความกังวล กับข้าพเจ้า	1	2	3	4	5
15	ไม่มีบุคคลใดต้องการพึ่งข้าพเจ้า เมื่อต้องการมีความสุข	1	2	3	4	5
16	มีบุคคลที่เชื่อถือได้ ที่ข้าพเจ้าจะถามหาคำแนะนำ หากข้าพเจ้ามีปัญหา	1	2	3	4	5
17	ข้าพเจ้ารู้สึกผูกพันกับบุคคลอย่างน้อยหนึ่งคน	1	2	3	4	5
18	ไม่มีผู้ใดที่จะช่วยข้าพเจ้า หากข้าพเจ้าต้องการความช่วยเหลือ	1	2	3	4	5
19	ไม่มีบุคคลใดที่ข้าพเจ้ารู้สึกสบายใจ ที่จะปรึกษาปัญหาด้วย	1	2	3	4	5
20	มีบุคคลที่ชื่นชอบพรสวรรค์ และความสามารถของข้าพเจ้า	1	2	3	4	5
21	ข้าพเจ้าไม่มีความรู้สึกผูกพันกับผู้อื่น	1	2	3	4	5
22	ไม่มีผู้ใดชอบทำสิ่งที่ข้าพเจ้าทำ	1	2	3	4	5
23	ในยามฉุกเฉินมีบุคคลที่ข้าพเจ้าสามารถพึ่งได้	1	2	3	4	5
24	ไม่มีผู้ใดต้องการความห่วงใยของข้าพเจ้า	1	2	3	4	5

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