

Violent Video Game Playing, Moral Reasoning, and Attitudes Towards Violence in  
Adolescents: Is There a Connection?

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## Abstract

In this study of 109 adolescents from the eighth grade of seven public elementary schools in Ontario, the relationship among adolescents' violent video game playing patterns, habits and attitudes, their levels of moral reasoning, and their attitudes towards violence in real life was investigated. In addition, gender differences were addressed. The mixed-methodology was employed combining qualitative and quantitative data. The research results confirmed that playing video games in general is a very popular activity among those adolescents. Significant negative relationship was found between adolescents' amount of time playing violent video games during the day and their scores on The Sociomoral Reflection Measure. Significant difference was also found between adolescents who play violent video games and those who do not play violent video games on their scores on The Attitudes Towards Violence Scale. Boys and girls significantly differed in the amount of playing video games during the day, the reasons for playing video games, their favourite video game choices, and their favourite video game character choices. Boys and girls also significantly differed on their choices of personality traits of selected video game characters, the identification with video game characters, and their mood experiences while playing video games. The findings are put into the educational context and the context of normal development, and suggestions are given for parents, for educators, and for future violent video game research.

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## CHAPTER ONE: OVERVIEW AND BACKGROUND TO THE STUDY

“We must remember that education alone is not enough. Intelligence plus character - that is the goal of a true education” Martin Luther King Jr.

Throughout my Master in Education graduate work, I have been engaged in a longitudinal project *Children Stories as Cultural Mirrors* led by Dr. Anne Elliott investigating media effects on children’s attitudes, views, and behaviours. This experience has given me an opportunity to gain knowledge about many aspects of the research process, and it has also awakened my passion for research. While I was analyzing data related to children’s violent video game playing patterns and habits, I found that many children declared spending a lot of time playing these games (2-3 hours a day) but what surprised me was that many of them declared that they preferred to play violent video games. I wondered why there was such an attraction to violence. I also wondered if there could be any potential learning from playing video games and, if so, what was learned from playing violent games. These questions led me to wonder further if playing violent video games might have an effect on children’s differentiation between right and wrong. This thesis was my quest to find the answers to those questions.

Concerns about violence in the media and its potential impact on children’s behaviours and attitudes are not new. By definition, the violence most relevant to visual media is described as the exercise of physical force in order to injure or damage person(s) or property in a way that causes bodily injury and/or forcibly interferes with personal freedom (Anderson, 2004). For more than 5 decades, researchers have been concerned about the violence portrayed in the popular screen media and the possible harm these portrayals might have on children (Anderson et al., 2003; Anderson & Bushman, 2001;

Berkowitz, 1984; Huesmann, & Taylor, 2003; Josephson, 1987; Singer & Singer, 2001; Wagner, 2004). Many of these studies found that children who spend significant amount of time watching television and movie violence are more likely to exhibit aggressive behavior, and may experience violent tendencies in their attitudes and values in real life (Anderson & Bushman, 2001; Anderson & Dill, 2000; Berkowitz, 1993; Bushman & Anderson, 2009; Dahlberg & Potter, 2001; Singer & Singer, 2001). Sgarzi (2003) argued:

As our children grow and develop attitudes and beliefs about the word and how it works, they are plugged into video media from morning to night. The pictures, images, and sounds they hear are being imprinted practically from birth. If we, as concerned citizens, do not begin to address the presentation of violence, senseless killing, and merged sex and violence in the video media, we become at risk for even greater proliferation of such images and the loss of more and younger children to that influence. (p.70)

In recent years, there has been a growing consensus that violence in the screen media has become even more prevalent. Paquette and de Guise (2001) studied six major Canadian television networks over a 7-year period, examining films, situation comedies, dramatic series, and children's programming. They found that between 1993 and 2001, incidents of physical violence increased by 378%, and that television shows in 2001 averaged 40 acts of violence per hour. Despite the research evidence that violence seen on television may cause significant problems in the behaviour of children, the violent shows have become, not only more frequent, but even more violent in recent years. The television season that began in the fall of 2005 became one of the most violent in recent history averaging 4.41

instances of violence per hour during prime time which represents an increase of 75% since the 1998 television season (Parent Teacher Association, 2008).

Researchers consistently identified three problems associated with heavy exposure to media violence: children (a) may show less empathy to suffering of others, (b) may become more fearful of the world around them, and (c) may develop aggressive behaviour toward others (Anderson et al., 2003; Anderson & Bushman, 2001; Bushman & Huesmann, 2006; Singer & Singer, 2001; Wagner, 2004). Bushman and Huesmann emphasized that the aggressive behavior on the screen which is lacking consequences and which is portrayed as justified, may have a greater effect on children. For instance, the violence committed by “Good Guys” is often seen as justified even if the act of violence is disturbing and extremely violent to watch. In addition, when the violence is committed by an attractive or charismatic hero, with whom the child identifies, the effect of that violence might become even stronger (Bushman & Huesmann, 2006). In one of the very popular television shows in the past 24, *Jack Bauer* is portrayed as a charismatic hero who fights against terrorists, and his sometimes extremely violent methods used against “Bad Guys” are portrayed as justified and acceptable.

Exposure to media violence may lead children to see violence as a normal response to stress and as an acceptable means for resolving conflicts (Huesmann & Guerra, 1997; Thompson & Massat, 2005). Thus, children who are frequent viewers of television or movie violence may learn that aggression is a successful and acceptable way to achieve goals and solve problems and they may have experienced difficulty using other creative and imaginative approaches to express their feelings, to overcome their anger, and to gain self-control (Dahlberg & Potter, 2001; Thompson & Massat, 2005).



There is also a fear that exposure to media violence may influence children's moral development (Krcmar & Curtis, 2003; Krcmar & Valkenburg, 1999; Vieira & Krcmar, 2011; Wilson, 2008; Wilson & Cantor, 1985). Krcmar and Curtis argued that the exposure to television violence could affect children's moral reasoning in real-life situations that are similar to those seen on television. They found that children who watched a lot of violence on television used less advanced moral reasoning strategies in explaining their judgments when asked to differentiate between fantasy violence and violence seen in more realistic television shows. These findings led authors to conclude that violent television could negatively impact moral judgment and moral reasoning, the "two hallmarks" of moral development (Krcmar & Curtis, 2003; Krcmar & Valkenburg, 1999).

Time spent viewing television as a primary activity has declined lately due to the increased popularity of new interactive media (e.g., video games and the Internet) that have become children's new popular choice for spending their leisure time (Ivory, Williams, Martins, & Consalvo, 2009). Drawing on research conducted on the effects of television and movies on children, there is a potential that exposure to new media, such as violent video games, may produce similar effects (Anderson & Bushman, 2001; Dill & Dill, 1998; Funk, Baldacci, Pasold & Baumgardner, 2004; Gentile & Gentile, 2008; Goldstein, 2005; Subrahmanyam, Kraut, Greenfield & Gross, 2000). The research stipulated that compared to the effects of television violence, violent video games may be even more detrimental due to a number of specific features:

1. Video games provide direct rewards (e.g., points, promotion to the next level) to the players for their aggressive actions in the game.

2. Video games stimulate the performance of specific behaviour (such as hitting a target).
3. Video games facilitate identification with the aggressor by allowing players to choose from a range of violent characters.
4. Video games are designed with realism in graphics and sounds, which may cause identification with real life and may stimulate similar violent actions (Anderson et al., 2003; Anderson & Bushman, 2001; Huesmann & Taylor, 2003; Singer & Singer, 2001; Wagner, 2004).

Another concern is that heavy use of video games may affect a child's ability to distinguish real life from simulation. As Subrahmanyam, et al. (2000) stressed:

Simulated worlds created by video games, computers, and the Internet are expanding children's experiences from real to virtual. Computerized games move users into a world where the distinction between real life and simulation may not be clear, especially for children. (pp. 137-138)

The implication is that by losing the ability to distinguish between real world and fantasy, children are at risk for both perceiving violence and killing as an acceptable method of problem solving, or, in some cases, even perceiving violence as normal.

Many violent video games enable their players to identify with the characters in the most literal sense of the word. An important question, therefore, is whether by accepting violence as normal, children use less advanced moral reasoning skills in real life situations. The sense of being in control while playing may develop the feeling of "being present" (Lee, 2004), hence, may have further consequences for the gamers' identification with violent characters and their violent action represented in games. This identification may cause possible danger for young players as it may create the transference of aggression to a real life situation. In this transfer,

the process of differentiation between right and wrong may become weaker; hence, the negative consequences for the development of moral reasoning may become stronger (Durkin, 2006; Jansz, 2005). For instance, there is a claim that the first person shooter game *Doom*, was played by Eric Harris and Dylan Klebold before they went on a shooting rampage at Columbine High School in 1999, killing 12 fellow students and one teacher, before committing suicide (Porter & Starcevic, 2007). The two killers had mentioned the game in a video they made before the massacre, stating it would be just like *Doom* (Snopes.com, 2005). This claim may have become a part of the media hype that created a “moral panic” (Ferguson, 2011; Sherry, 2007) about violent video game playing. There is still not enough scientific evidence, however, to confirm a direct relationship between this unfortunate event and violent video game playing.

In the light of the findings about the significant influence of television violence on children’s moral development (Krcmar & Curtis, 2003; Krcmar & Valkenburg, 1999), an important question is whether there is enough evidence that violent video games may produce a similar effect. Eron (2001) reported that exposure to violence in video games may influence the development of moral reasoning because, in such games, violence is not only presented as acceptable, but also is justified and rewarded. According to Eron, empathy and attitudes towards violence are important components of the process of moral reasoning, and if cognitive desensitization happens due to overexposure to violent video games, it may later lead to stronger proviolence attitudes. By lowering children’s empathy levels, children may begin to see other human beings as objects to do things to, as in a video game, rather than other people with equal rights and feelings. It is then possible that, for some children, absorption in violent video games may result in the development of scripts for aggression that bypass the typical

process of moral evaluation. Although research in this area is limited, the most recent research on violent video games and moral reasoning conducted by Edward T. Vieira and Marina Krcmar (2011) found that violent video gaming was negatively related to children's perspective-taking and ability to sympathize, both conditions very important in the process of moral reasoning.

There is a conflict between those who state that violent media may negatively influence children and those who argue that violent media have no effect or that even can produce some positive effects. As Sgarzi (2003) stressed:

The evidence in support of this idea is that most people don't commit violent crime after viewing thousand of media images depicting these crimes. When these proponents of the media do admit even a slight chance of media effect, they blame the public for over watching. Their position is, if people get in trouble with the media, it is because they watch too much television and too many movies. We, in essence, make victims of ourselves. (p.71)

Prensky (2001) stated that well-designed video games provide the player with clear objectives that are adaptable to the learning pace of the viewer. In the attempt to reach these objectives, not only do video games reinforce mastery of their material through immediate and constant feedback but they also provide extrinsic reinforcement (e.g., awarding points, impressive visual and sounds effects), which motivates players to continue playing. Video games also may provide multiple positive learning opportunities and may help in developing imagination, problem-solving skills, and the skills of leadership, positive competition, and collaboration when involved in multiple players' games (Gee 2003, 2007; Russoniello, O'Brien, & Parks, 2009; Shaffer, Squire, Halverson, & Gee, 2005). It can be argued that the possible negative

influence of violent media may not lie in the simple act of playing violent video games. Rather, it might be that the problem lies in playing violent video games for extended hours a day, and that overconsumption may affect some children negatively. As a result, some of them may lose their sense of reality, accept violence as a means of solving problems, and develop aggressive scripts that may hinder the development of their moral reasoning (Anderson & Bushman, 2001; Huesmann & Taylor, 2003; Singer & Singer, 2001; Wagner, 2004).

According to moral developmental theories, moral development in children follows a predictable developmental path in an invariant sequence of stages (Beauchamp & Childress, 2001; Gibbs, 2003; Kohlberg, 1984; Piaget, 1965). When presented with a moral dilemma, children under the age of eight usually take an egocentric perspective and judge an action as wrong when the action results in punishment or is against the rules set by authority figures. As children mature, they start to consider multiple perspectives within dilemmas, and begin to recognize the intentions and motives of others. At the adolescent stage, children become more capable to reason about morality and start to consider the perspective of others. Adolescence is a period of life that generally starts at about age 12 and runs to age 20, and is considered as a time of a great change on many levels (Brooks-Gunn & Reiter, 1990; Brown, 1990; Collins & Gunnar, 1990; Dolan, 2002; Gardner & Steinberg, 2005; Steinberg, 2004). These changes include dramatic biological changes, social changes, and major psychological changes linked to increasing social and cognitive maturity. Adolescence is accompanied by an increasing ability (a) to think abstractly, (b) to engage in more sophisticated and elaborate information processing strategies, (c) to consider multiple dimensions of a problem at once, and (d) to reflect on one's self and on complicated problems (Anderman & Mueller, 2009; Meece & Eccles, 2009; Wigfield, Byrnes, & Eccles, 2006).

According to moral development theories, adolescence is a stage when major changes in moral development take place (Beauchamp & Childress, 2001; Gibbs, 2003; Kohlberg, 1984; Piaget, 1965). At this stage, adolescents tend to believe that good behaviour means having good motives and interpersonal feelings such as love, empathy, trust, and concern for others. Moral reasoning at this stage has moved beyond the need for individual approval, to adhere to a central ideal or ideals that often prescribe what is right and wrong. Kohlberg described these sequences of development based on adolescents' evaluations of right or wrong behaviours and their consideration of their own judgment and the judgment of others. Although the stages emerge from their own thinking about moral problems, Kohlberg posited that social experiences are also important as they promote development by stimulating mental processes. Additionally he suggested that children's moral development depends on their role in different social contexts. As video games have become an increasingly popular activity among children and adolescents, a new social context has been formed, and, thus, a new source of role modeling has emerged. Ferguson (2011) argued that the exposure to media violence still remains a critical risk factor for aggression in adolescents. Thus, the research on adolescents, violent media, and moral reasoning is (of essence) vital for further understanding of this very sensitive period in human life. While some research has been done on the possible consequences of playing violent video games on children's behaviours and attitudes, very little academic research has focused on the potential relationship among adolescents' violent video game playing patterns and habits, their levels of moral reasoning, and their attitudes toward real violence.

### **Problem Statement**

Drawing on research conducted on the possible negative effects of violence presented in the media (e.g., television and movies) on children's behaviours, attitudes, and moral reasoning (Anderson, et al., 2003; Anderson & Bushman, 2001; Bushman & Huesmann, 2006; Singer & Singer, 2001; Wagner, 2004), there is a possibility that playing violent video games might produce similar negative effects on adolescents' behaviours, attitudes, and moral reasoning. Therefore, the purpose of this study is to determine if there is a relationship among adolescents' violent video game playing patterns and habits, their levels of moral reasoning, and their attitudes towards real violence.

### **Rationale**

Children today live in a world where many of their social experiences are mediated by screen technology. As Wilson (2008) stated:

Children develop their emotional and social capabilities through a complex process. To participate effectively in their culture, they must acquire the norms, rules, and values that will enable them to form connections and function in families, peer groups, and broader society. They learn about emotions, and about relationships from parents, friends, teachers, and siblings. Video media too play a role in children's socialization. Children can come to appreciate norms and standards of conduct by watching social actors in fictional stories and can even experience emotional and social situations in a vicarious way through the media. (p.88)

Video games have become one of the most prevalent sources of screen-based media violence. The latest research shows that the most preferred video games are the ones with fantasy and human violence (Bajovic, 2006; Pollon, 2003; The Canadian Teachers' Federation, 2005; The Media Awareness Network, 2005). As this new media becomes increasingly popular among children, parents and teachers continually express fear about not knowing what video games children are playing and about what effect these games may have on them. As parents play an important role in their children's lives, it becomes recommended that they know what their children are doing on their computers/online. With this knowledge, parents can set appropriate rules to monitor access to and time spent on these activities (Kerr & Stattin, 2003; Guilamo-Ramos et al., 2010; Tilton-Weaver et al., 2010).

Parents feel increasingly victimized by a culture of violence that makes it difficult to protect their children against influences they find to be inappropriate (Cantor & Wilson, 2003). Cantor and Wilson found that a majority of children reported that their parents do not impose a time limit on the number of hours they are allowed to play video games, and most parents are unaware of the content or the Entertainment Software Rating Board (ESRB) rating of the video games their children play. Researchers argued that the risk of the effect of violent video games on children who play excessively and for a long amount of time is even greater (Anderson et al., 2003). Biglan (2004) argued that parents who know what their children are doing are able to detect when they are drifting into activities that might pose a risk. Prohibiting adolescents from playing violent video games is not realistic, but the awareness of what kind of video games their children are playing and for how many hours may allow parents to better understand the video games



they play, to discuss the games, and to set time limits if necessary. Hence, there is a need for providing parents with the information about violent video games in general and the possible effects that those video games may or may not have on their children's attitudes, behaviour, and moral development (Cantor & Wilson, 2003). Parents should become aware of the amount of time their children spend playing video games, the violent content presented in video games, and the possible gender and racial stereotyping presented in video games. Therefore, parents need to gain enough information about video games to help them make informed decisions based on their own personal set of values in order to help children to understand the messages that may be contained in video games. Only informed parents will be able to make sound decisions about their children's leisure time, and only then will they be able to avoid the influence of moral panic created around violent video games (Ferguson, 2011; Ferguson & Kilburn, 2010).

Shaffer, Squire, Halverson and Gee (2005) also expressed concern that teachers do not have enough awareness about video games. They stated:

However, even if we had the world's best educational games produced and ready for parents, teachers, and students to buy and play, it is not clear that most educators or schools would know what to do with them. Although the majority of students play video games, the majority of teachers do not. (p. 26)

Therefore, major efforts should be made to educate teachers about (a) the types of games accessible to their students, (b) the violent content that those games contain, and (c) the possible effects those kinds of games may have on their students' attitudes and behaviour. Rice (2007) and Ceranoglu (2010) raised the question about use of violent video games in educational settings. They argued that the use of violent video games in formal settings

with teachers equally involved in playing may promote development of some cognitive skills such as memory and perception.

Another research group has suggested that the game *World of Warcraft* may promote reading and writing achievement, thus including boys who previously had little interest in such activities (Steinkuehler & Duncan, 2008; Steinkuehler & Williams, 2006). Similarly, VanDeventer and White (2002) found that children who displayed expertise at mildly violent games were likely to display higher ordered thinking skills. Research implied that teachers' awareness about video games in general, and about students' video game playing patterns and habits may help teachers and students in deconstructing the meanings behind video game messages, and even inspire the incorporation of some of the games in everyday classroom activities (Bajovic & Elliott, 2011; Cantor & Wilson, 2003; Gentile, Lynch, Linder, & Walsh, 2004; VanDeventer & White, 2002). Further study about the implications of children's violent video game playing experiences and their effects on children's moral reasoning are needed to understand the cumulative effects of exposure to violent content in video games. These issues also deserve attention so that relevant and effective strategies for a critical approach to violent video games can be developed and be added to critical media literacy programs in our schools.

Media education was first mandated in Ontario in 1987 and was introduced into Ontario's Common Curriculum in 1995 under Policies and Outcomes for Grades 1-8. In 2006, Ontario introduced a new Language curriculum for Grades 1-8. The new curriculum includes a new expectation strand: Media Literacy. The Media Literacy strand gives media education the same focus as the traditional strands included in the

curriculum: Oral Communications, Reading, and Writing. The 2006 Ontario Curriculum expects teachers to, “plan activities that blend expectations from the four strands in order to provide students with the kinds of experiences that promote meaningful learning and that help students recognize how literacy skills in the four areas reinforce and strengthen one another” (Ontario Curriculum, 2006). Media literacy explores the impact and influence of mass media and popular culture by examining texts such as films, songs, video games, action figures, magazines, newspapers, and other popular media. These texts abound in our video information age, and the messages they convey may have a tremendous influence on our children’s lives. For this reason, critical thinking becomes necessary in order to provide students with understanding the difference between fact and fiction, and enabling them to critically interpreting the messages they receive through the various media.

In November 2007, The Ontario Ministry of Education introduced *Finding Common Ground: Character Development in Ontario Schools*, a document designed to guide the implementation of character education in K-12 public schools within the province. In this document, the main goal of Character Education is to “develop school environments in which all people - students, teachers, administrators and support staff - treat each other with care and respect” (Ontario Ministry of Education, 2008). This initiative is based on academic achievement, character development, citizenship development, and respect for diversity. One of the specific goals of this initiative is to reduce behavioural problems among students. Based on the research on violent media effects on aggressive behaviour, it appears of utmost importance to teach children to bring a critical approach to such media. Thus, a critical understanding of the messages of

right and wrong presented in violent video games and violent media in general deserves to be embedded as the important strategy of Character Education curriculum.

Bajovic and Elliott (2011) stated that the aim of critical literacy in the classroom is to help both the children and the teachers to understand the process of how deconstructing words and ideas coupled with their background experience helps them to construct their own worlds. Our children should be able to “read the world” (Freire, 1978; Freire & Macedo, 1987) after they are able to read, understand, and to critique a text as it reveals the world of ideas. The purpose of teaching our children to become critical consumers of any kind of media is also to encourage their active participation in a democracy (Durrant & Green, 2000; Livingstone, Van Couvering, & Thumim, 2008). According to Durrant and Green, any concern with deconstructing media messages interconnects with social practices and integrates talk, action, values, beliefs, and behaviour. It appears evident that there is a growing need to go beyond focusing on skill acquisition to developing critical thinking and good character in children if they are to become democratic, tolerant, and compassionate citizens of the world (Bajovic & Elliott, 2011).

The present study aims to bring awareness and to provide a better understanding about the issues related to violent video game playing. It also aims to further promote educational programs that would teach nonviolent strategies for resolving conflicts through the adequate implementation of Critical Media Literacy and Character Education in classrooms. Most of the past research conducted on violent video games emphasized their effects on children’s aggressive behaviours and attitudes, and so far it has paid little attention to violent video game playing and children’s moral development and their

attitudes toward real violence. There still remains a dearth research on possible relations between children's violent video game playing patterns and habits, their levels of moral reasoning, and their attitudes toward real violence.

### **Research Questions**

In the present study eight primary research questions were addressed:

1. What are adolescents' video game playing patterns and habits?
2. What attitudes and feelings do adolescents report during and after violent video game playing?
3. What beliefs do adolescents describe about violence in video games and violence in real life?
4. Do adolescents report identification with video game characters and what are the personality traits they admire the most in their favourite video game characters?
5. What are adolescents' levels of sociomoral reasoning (SRMS) and what are their attitudes towards real violence (ATV)?
6. Is there a statistically significant relationship between adolescents' violent video game playing patterns and habits and their levels of moral reasoning/maturity?
7. Is there a statistically significant relationship between adolescents' violent video game playing patterns and habits and their attitudes toward real violence?
8. Is there a statistically significant difference between adolescents who play violent video games and those who do not play with regards to their levels of moral reasoning/maturity and their attitudes towards violence?

### **Significance of the Study**

This research aims to provide new insights and better understanding for students, educators, and parents about the possible effects of violent video games on children's moral development and their attitudes towards violence. It also aims to further emphasize the inclusion of educational programs in school curriculum, such as Critical Media Literacy and Character Education, to teach children about nonviolent strategies in resolving conflicts, and in critically deconstructing different media messages in order to reduce possible negative effects of violent media on their development.

### **Summary of the Chapter**

Chapter Two presents a review of present literature that collectively provides background information to support the need for this investigation. An overview of the effects of media violence on children's attitudes, behaviours, and moral development are presented first to provide background for the research needed for violent video games. Next, the description and the research on violent video games are presented, followed by the theoretical framework for research in media violence and in moral development. In Chapter Three, a rationale and detailed description of mixed methodology are described. In Chapter Four, the detailed results of the study are presented, and in Chapter Five, discussion and conclusions based on results are reviewed.

## **CHAPTER TWO: REVIEW OF THE LITERATURE**

The purpose of this chapter is to support the relevance of this investigation through review and analyses of the literature. This review is comprised of three parts. In the first part, the theoretical framework is provided based on the theories on media violence, cognitive-development, and social-domain theories of morality. Second, the phenomenon of violent video games is addressed, and the most popular violent video games are described. In the third part, the research on effects of media violence on children's attitudes, behaviours, and moral development are reviewed.

### **Media Violence Theories**

A review of the various theories proposed to explain how violent media exposure may lead to aggressive behaviour, and specific research findings that support those theories are presented next.

#### **Theory of Desensitization**

Humans' normal physiological reactions to the sights (e.g., blood, severed body parts), sounds (e.g., screams of anger, pain), and smells of violence tend to be negative. This appears to be true whether witnessing actual violence, viewing images of violence, or even thinking about real violence (Carnagey & Anderson, 2003). These negative reactions serve as an inhibition to violence, affecting decision-making processes and behavioural choices, and may also play a role in instigating helping behaviour towards victims of violence (Bartholow, Bushman, & Sestir, 2006; Funk, Buchman, Jenks, & Bechtoldt, 2003). Therefore, the normal negative emotional and physiological reaction to violence decreases the likelihood of aggressive behaviour and increases the likelihood of prosocial behaviour towards victims of violence. However, there is also a possibility that

violent media exposure can desensitize an individual to violence (Carnagey, Anderson & Bushman, 2007; Eisenberg, 2000; Funk et al., 2003). When this desensitization occurs, the inhibitory effect on aggression and the effects on prosocial behaviour may be diminished. Desensitization theory posits that individuals who watch large amounts of violence presented in movies or television become less sensitive to future violent content than individuals who watch less violence (Carnagey et al., 2007). Funk et al. (2004) suggested that repeated exposure to media violence might alter emotional reactions that may result in desensitization to the consequences of real-life violence. Cognitive desensitization becomes evident when children's thinking shifts from a belief that violence is uncommon and unlikely, to the belief that violence is frequent and inevitable.

Desensitization to violence tends to lead to various violent acts and may make violence seem normal, therefore, causing children to think less about the consequences of their violent actions (Carnagey et al., 2007; Eisenberg, 2000; Funk et al., 2003). They also may begin to presume violence as trivial and inevitable. Believing that violence is trivial and inevitable may create two responses. First, less anxiety becomes associated with violence when it is seen as common and likely. As anxiety usually serves to inhibit violent behaviour, it is more likely that reduced anxiety might increase aggressive behaviour (Carnagey et al., 2007; Eisenberg, 2000). Second, believing that violence is inevitable reduces positive emotional reactions, and consequently undermines feelings of concern, empathy, or sympathy that viewers might have toward victims of real violence (Funk et al., 2003).

One study on desensitization and violent video games that supported the theory was conducted by Carnagey et al. (2007). For this study, participants reported their



general media habits and completed the Buss-Perry Aggression Questionnaire while baseline heart rate (HR) and galvanic skin response (GSR) measurements were taken. Participants were randomly assigned so that half played one of four violent video games (*Carmageddon*, *Duke Nukem*, *Mortal Kombat*, *Future Cop*) whereas the other half played nonviolent games (Glider Pro, 3D Pinball, 3D Munch Man, or Tetra Madness). All participants played the assigned game for 20 minutes. After the game play period, additional heart rate and galvanic skin response measurements were taken. Finally, heart rate and galvanic skin response measurements were taken while the participants watched a 10-minute video clip of real life violence. Participants who had played violent games showed decreases in heart rate and galvanic skin response while observing real life violence, in stark contrast to the increases by those who had played nonviolent games. Although this study was insightful, it did not directly address the issue of whether exposure to violent media desensitizes individuals to real life violence. The main public concern with desensitization to violence is not that viewing media violence lowers responsiveness to other media violence, but that it lowers responsiveness to real world violence.

Further evidence for the potential of violent video games to desensitize players to violence comes from a study by Bartholow et al. (2006). In this study, participants varying in past history of violent video game exposure were presented with a series of negative photos, half-violent and half-nonviolent, interspersed among a set of more numerous neutral photos, while event-related potentials (ERPs) were recorded. Event-related potentials are scalp-recorded voltage fluctuations that represent neural activity associated with various information-processing operations. The P300 component-a

positive voltage deflection occurring approximately 300 ms after stimulus onset-has been demonstrated to be positively related to activation of the aversive motivational system. Results demonstrated that participants with a history of violent video game exposure were significantly less physiologically responsive to the violent images, compared to participants with low prior violent game exposure. The specificity of this emotional desensitization to violence was demonstrated by the lack of any relation between past violent video game exposure and physiological responsiveness to the control or the negative nonviolent images. Furthermore, this violent video game effect on desensitization remained significant after controlling for individual differences in trait aggression. Interestingly, the high violent video game exposure participants also were more aggressive on a subsequent standardized laboratory aggression task, and their P300 responses to violent images predicted their aggressive behaviour on this task. In both studies, the results demonstrated that overexposure to violent video games may result in participants' emotional desensitization to the violent images.

When desensitization occurs, the process of moral evaluation may be disrupted because the individuals do not respond to the cues that should be considered for their moral implications. Funk et al. (2004) argued, "As a result, actions may be taken without consideration of their moral implications. Empathy and attitudes toward violence are important components of moral evaluation which may be affected by exposure to violence in real life or in the media" (p. 25). Therefore, if the exposure to video game violence initiates desensitization, there is a probability that it may cause the association with lower empathy and stronger proviolence attitudes.

## **Script Theory**

Huesmann (1998, 2001) theorized that children who are exposed to a great deal of violence, either in real life or in media, would develop cognitive scripts that promote aggression as a way of solving problems. Scripts are sets of particularly well rehearsed, highly associated concepts, and if strongly linked, they may form a unitary concept in semantic memory. According to Huesmann's (1998, 2001) script theory, aggressive scripts incorporate normative beliefs about the appropriateness of an aggressive action in a repeated situation. Those normative beliefs control whether or not aggressive scripts are memorized and whether they will be retrieved and translated into action in a particular situation. Typically, violent video games reward aggressive actions by giving points (rewards) to players, thereby promoting the understanding that aggression is an appropriate way of dealing with interpersonal conflicts and conflicts with others in the context of violent video games.

Huesmann, Moise-Titus, Podolski, and Eron (2003) conducted a longitudinal study involving more than 500 elementary school children (age six -10) investigating long-term effects of media violence. The researchers collected data of television viewing and aggressive behaviour when the children were in grade school and again 15 years later when they were adults. The measure of adult aggression included self-reports of spousal abuse, punching and choking another person, and shoving others, as well as documented criminal behaviour. In support of the idea of learned scripts, heavy exposure to television violence in childhood predicted increased physical aggression in adulthood. This pattern held for both boys and girls, even after researchers controlled for the child's initial level of aggressiveness, the child's IQ, the parents' education, the parents' television habits,

the parents' aggression, and the socioeconomic status of the family. Huesmann (2001) suggested that when children observe violence in the media, they first select a script to represent the situation and then assume a role in the script. Once a script has been learned, it may be retrieved later and used as a guide for behaviour. This approach can be seen as a specific version of social learning processes (Bandura, 2001). When strongly linked, those scripts can change a person's expectations and intentions involving important social behaviours (Anderson & Bushman, 2001; Anderson & Dill, 2000; Huesmann et al., 2003). Based on this theory, it can be assumed that a child who has played video games that involved guns and aggression to gain reward points is more likely to have an accessible script that can be generalized across many similar situations in real life. In other words, aggressive scripts may translate into children's aggressive thoughts and aggressive behaviour in real life situations, which, in turn, may have possible consequences on children's moral reasoning and their attitudes toward violence.

It is important to stress here that the relation between media violence and aggression quite possibly involves other cognitive processes as well. Violent scenes may change children's attitudes about violence, and may change children's emotional responsiveness to violence (Anderson & Bushmann, 2001; Anderson & Dill, 2000). However, many other genetic and environmental influences seem to affect these processes as well. Aggression itself may stimulate violence viewing through its effect on the child's social environment and cognition. More aggressive children, ostracized by their peers, may find justification for their behaviour in the scenes of violence that characterize the media's representation of life (Kiewitz & Weaver, 2001; Slater, Henry, Swain & Anderson, 2003). Thus, the susceptible child may become enmeshed in a

continuous cycle of violence viewing and aggression, a cycle which leads to the development of habitual aggressive behaviour. However, much more work is needed to identify who is at most risk for negative impact and under what conditions negative outcomes are most likely (Funk, 2002).

### **Cognitive-Developmental Theories of Morality**

A review of the cognitive-developmental theories of morality with the purpose to explain and describe children's moral reasoning development is presented next.

#### **Definition of Moral Reasoning**

From a theoretical perspective, moral reasoning is defined as the ability to make ethical choices when a moral dilemma is encountered and the ability to articulate reasons for choices that are made (Lee, 2004; Leman, 2001). Whereas moral judgment includes the moral beliefs and agreement in making concrete moral decisions, moral reasoning primarily regards the structure underlying these arguments or the pattern along which concrete arguments are produced (Leman, 2001). Thus, moral reasoning provides the individual with the certain knowledge and understanding that may (or may not) be used in making concrete moral choices. In that sense, moral reasoning can also be referred to as a competence of moral judgment and is defined as a process of judging which action is morally right or wrong (Rest, Narvaez, Bebeau, & Thoma, 2000). Once a person is aware that various lines of action are possible, one must ask which line of action is more morally justified. The process of moral reasoning based on a specific aspect of moral judgment was emphasized in cognitive-developmental theories (Gibbs, 1994; Kohlberg, 1969, 1984; Piaget, 1932).

### **Piaget's (1932) Theory of Moral Development**

Piaget (1932) suggested that moral development emerges from persons' actions, and that the construction of their moral understanding is a result of their interactions with the environment. Piaget (1932) believed that the early stages of moral development are characterized by egocentrism when children focus more on the outcome of an act and fulfillment of their own needs. A later stage of moral development is associated with the ability to imagine the perspective of others and, according to Piaget (1932), the concern for others becomes more important than the concern for one's own needs. During adolescence, this pattern of thinking about moral issues is assumed to develop from a rather simple egocentric orientation to a more complex social orientation.

Based on Piaget's (1932) theory, children progress linearly through three stages of maturation, and moral development is presented as a progressive understanding of justice. Piaget (1932) based his moral theory on two lines of research. First, he observed children of different ages playing marbles, and asked them questions about the rules of the game. He found that children younger than five had no rules at all. Between five and 10, there were rules, but children saw them as fixed; and, finally, by the age of 10, the children were able to think of their own rules and recognize that these could be adopted by mutual consent. In another research attempt, Piaget (1932) presented children with different moral dilemmas, each consisting of a pair of stories. In one, a child deliberately caused a small amount of damage. In the other, the damage was accidental but much greater. Piaget (1932) asked children which of the deeds deserved to be punished the most, and tried to find out not just their answers but the reasoning they used to arrive at

them. He concluded that children younger than 10 focused only on consequences, while older children also considered intent.

According to Piaget (1932), children progress from infancy to adolescence through three stages of development. The first stage is known as premoral judgment and lasts from birth until about 5 years of age. In this stage, children simply do not understand the concept of rules and have no idea of morality internal or external. This stage coincides with the sensorimotor and pre-operational stages of Piaget's (1932) cognitive theory in the sense that since the children have a poor conception of other people's consciousnesses (if at all), they are incapable of carrying out complex mental operations, and it is impossible for them to have a sense of morality. The second stage is called moral realism and lasts from the approximate ages of five to 9. Children in this stage understand the concept of rules, but they see them as external and immutable. Children obey rules largely because the rules exist and they evaluate wrongdoing in terms of its consequences, not the intentions of the wrongdoer. In terms of Piaget's (1932) cognitive theory, this stage corresponds to the pre-operational and concrete operational stages. The final stage is called moral relativity. This stage begins at about seven years of age, so it overlaps at first with moral realism. Children who have reached this stage recognize that rules are not fixed, but can be changed by mutual consent, and they start to develop their own internal morality. A major development is that actions are now evaluated more in terms of their intentions, which is seen as a more sophisticated view of morality. Piaget (1932) also thought that it was during this stage that children develop a firm concept of the necessity that punishment specifically fits the crime. This stage corresponds to the concrete and formal operational stages in Piaget's (1932) cognitive theory, during which

children become able to carry out complex mental operations, first on concrete examples, and then additionally on abstract concepts.

Piaget (1932) concluded that schools should emphasize cooperative decision making and problem solving, nurturing moral development by requiring students to work out common rules based on fairness. Piaget (1932) believed individuals define morality individually through their struggles to arrive at fair solutions, and he suggested that a classroom teacher must provide students with opportunities for personal discovery through problem solving, rather than indoctrinating students with norms. In the context of video game playing, teachers are required first, to understand the content of video games and the story line in the game, and second, to initiate discussions about video games in the classroom. Through this dialog, they can guide children to differentiate between right and wrong within the stories depicted in video games.

### **Criticism of Piaget's (1932) Theory of Moral Development**

Piaget's (1932) theory has been criticized on the grounds that it is based on moral universals meaning that his moral stages are culture-specific and are applicable only to Western culture (Haidt, 2001; Snarey, 1995). It has been claimed that the moral development of children in non-Western cultures may differ from that of the children Piaget (1932) investigated. Piaget's (1932) theory was also criticized on the grounds that he has underevaluated children. Research conducted by psychologists (such as Bussey, 1992; Yuill & Perner, 1988) found that children after the age of three are able to consider others' purpose and intention. They also found that children at this age are able to consider a person who has intentionally made a mistake guiltier when compared to an individual who has had no intention in his wrong action, even if his wrong is greater.



Piaget's (1932) theory of moral development has been criticized by evolutionary psychology theorists who claim that not all morality comes from socialization, but that a basic sense of morality is a cognitive adaptation produced by natural selection, and, thus, is innate in nature (Huxley & Huxley, 1947; Ruse, 1986). Despite the critiques, Piaget's (1932) theory of moral development has had a great influence on Kohlberg's (1984) research that has been considered one of the most significant in explaining children's moral development.

### **Kohlberg's (1984) Theory of Moral Development**

Kohlberg's (1984) theory revolved around the notion that justice is the essential feature of moral reasoning. He believed that values are a critical component in differentiating between right and wrong, and that what is considered right must be universally valid across societies. Kohlberg defined the difference between values and rules:

To be honest (is a rule) and means 'don't cheat, don't steal, don't lie...' But justice is not a rule...It is a moral principle. By a moral principle, I mean a mode of choosing that is universal...that we want a people to adopt in all situations...There are exceptions to rules, but no exceptions to principles. (p. 39)

Kohlberg described moral development through six stages ordered into three levels of moral orientations that reflect children's growing competence in taking a sociomoral perspective: from a premoral, primarily egocentric orientation through a conventional, primarily rule-conforming orientation to a self-accepted, principled orientation. He stressed that at the earlier stage, "the centers of moral choice and feelings are based on

the outcome of personal well being'' (p. 393), while the later stage of moral development is associated with the ability to imagine the perspective of others. At the heart of each stage is the motivation for making the right choice. At the first level when children age range is from five to about 13, motivation is to avoid punishment, which evolves into serving individual needs while recognizing that others also have their personal interests. By the next level, a child develops a need to be a good person both in the opinion of others and his own. At this stage, a child develops a sense of obligation to maintain the present social system and starts to recognize that the welfare of all individuals depends on established laws and duties.

The final stage is the acceptance of universal moral principles, and a desire to abide by them (Power, Higgins & Kohlberg, 1989). Children's conceptualization of fairness evolves through each of the six stages, and guides choices between right and wrong. Kohlberg (1984) anticipated that once the stage structures were correctly identified, not only would moral judgment be unitary in nature, but also each moral development stage would follow the next in the exact same sequence. At the conventional morality stage, adolescents become more serious about morality, and they start to believe that good behaviour means having good motives and interpersonal feelings such as love, empathy, trust, and concern for others. Moral reasoning at the conventional morality stage is beyond the need for individual approval, and a central ideal or ideals often prescribes what is right and wrong. Kohlberg's main stages are also conceptualized as developmental levels of moral immaturity and maturity. Stages one and two represent immature or superficial moral judgment; an adolescent operating at these stages has a

developmental delay in moral reasoning. Stages three and four represent mature or profound moral reasoning and should be the norm for any culture.

According to Kohlberg (1984), a person who progresses to a higher stage of moral reasoning cannot skip stages. For example, one cannot jump from being concerned mostly with peer judgment, which happens at Stage three to being a proponent of social contracts (Stage five). However, when one encounters a moral dilemma and finds one's current level of moral reasoning unsatisfactory, one will look to the next level. Discovery of the limitations of the current stage of moral reasoning drives moral development to progress to the next stage in a constructive and meaningful way. Although the stages emerge from children's own thinking about moral problems, Kohlberg also believed that social experiences are important as they promote development by stimulating mental processes. Kohlberg suggested that children's moral development depends on their role in different social contexts. As video games have become an increasingly popular activity among children, a new social context has been formed, thus, the new social influences have emerged.

### **Criticism of Kohlberg's (1984) Theory of Moral Development**

There have been many criticisms of Kohlberg's (1984) theory of moral development and his methods. One criticism of Kohlberg's theory is that it emphasizes justice to the exclusion of other values, and, consequently, it may not adequately address the arguments of people who value other moral aspects of actions. Other factors, such as compassion, caring, and other interpersonal feelings, may play an important part in moral reasoning. Gilligan (1982) argued that Kohlberg's theory is overly andocentric considering that he did his research using only male participants, and that he did not

adequately describe the concerns of females. Research later done including both boys and girls, however, has found no significant pattern of differences in moral development between genders (Walker, 2006).

Some critics of Kohlberg's (1984) theory claim that the use of hypothetical situations skews the results because it measures abstract rather than concrete reasoning (Krebs & Denton, 2006). When children are presented with situations out of their immediate experience, they turn to rules they have learned from external authorities for answers, rather than to their own internal voice. Therefore, young children base their answers on the rules of right and wrong that they have learned from parents and teachers (Stages one and two according to Kohlberg's theory). If young children are presented with situations familiar to them, on the other hand, they often show care and concern for others, basing their moral choices on the desire to share the good and maintain harmonious relations, placing them in Stage three or four (which Kohlberg claimed was impossible at their age).

Another critique is that Kohlberg's (1984) theory of moral development is mainly concerned with moral thinking, not moral action (Haidt, 2001; Krebs & Denton, 2006). There is a common understanding that people who talk at a high moral level may not necessarily behave accordingly. Consequently, a perfect correlation between moral judgment and moral action cannot be expected. Kohlberg responded to this critique stating that there should be some relationship, and proposed that moral behaviour is more consistent, predictable, and responsible at the higher stages (Kohlberg, 1984), because the stages themselves increasingly employ more stable and general standards. For example, whereas at Stage three (convention stage) children base their moral judgment on others'

feelings, which can vary, at Stage four (post conventional stage) they make their moral decisions based on predetermined sets of rules and laws. Thus, we can expect that moral behaviour, too, will become more consistent as people move up the sequence. Generally speaking, there is some research support for this hypothesis (e.g., with respect to cheating), but the evidence is not clear-cut (Blasi, 1984; Brown & Herrnstein, 1975). Despite the criticism, Kohlberg's theory of moral development remains the most influential theory in the field of moral development.

### **Gibbs' (1994) Theory of Moral Maturity**

According to Piaget (1965) and Kohlberg (1984), children usually develop more mature moral judgment in the natural course of interactions with others. This mature moral judgment, according to Gibbs (1994, 1995, 2003), involves a growing ability to take the perspective of others. Children that show immaturity in the stages of moral judgment pronounced egocentric bias and usually base their judgment on "as you think, so you act." In the Piagetian/Kohlbergian approach, morality is presented as deeply and inextricably rooted in social interaction. "One's sociomoral justification is structured by one's understanding of the nature of the relations between persons and the transactions that serve to regulate, maintain, and transform these relations" (Gibbs, 1994, p. 20).

Gibbs conceptualized Kohlberg's main stages as developmental levels of moral immaturity and maturity or sociomoral justification stages (Gibbs, Basinger, & Fuller, 1992). Stages one and two represent immature or superficial moral judgment typical for younger children age five to about 12, while Stages three and four represent mature or profound moral judgment expected to be formed at adolescence and last throughout adulthood. These four stages are summarized as follows:

Stage 1. Power: "Might makes right." Morality is whatever big or powerful people say that you have to do. If you are in charge, whatever you do is right, and whatever you get is fair. This superficial reasoning is concrete or physical, for example, "the father's the boss because he's bigger." At this stage, children do not understand the moral reasons for rules; it is only wrong if you get punished.

Stage 2. The Deals: "You scratch my back, I'll scratch yours." Children usually ask "What's in it for me?" before helping or obeying others. Morality is an exchange of favours (e.g., "pay them back" or "do to them before they do to you"). They think they have the right to do what they want and that authority shouldn't "boss anybody around." Judgment is more psychological but still superficial in a pragmatic way. A child might justify keeping promises so that others will "keep their promises to me" or "treat me nice and not get mad." The main reason for not stealing or cheating is that you could get caught.

Stage 3. Mutuality: "Treat others as you wish to be treated" the relationship itself becomes a value. Trust and mutual caring, although intangible, are real and important. Moral judgment advances beyond pragmatic thinking to a perspective of mutual trust. Piaget (1932) described this as "reciprocity as an ideal" or "do as you would be done by" (p. 323). By caring about others and treating them fairly, people feel part of a community of belonging.

Stage 4. Systems: "Are you contributing to society?" This is a supplement to the interpersonal morality of Stage 3. The individual comes to appreciate the need for universal, consistent standards of interdependence. Morality is grounded in a deep

commitment to justice and caring. Honoring commitments becomes the measure of self-respect, even if retaining integrity means becoming unpopular.

According to Gibbs (1995), adolescents who have not advanced in moral judgment beyond Stage three usually have not had enough opportunities to take the roles or consider the perspective of others. He called it a moral judgment delay. He found that the greatest delay concerned the reasons for obeying the law. Individuals who were morally mature generally used Stage three reasons. For example, the selfishness of lawbreaking and the resulting chaos that can further cause insecurity, or even loss of trust in the world. In contrast, children who were morally immature used reasoning that generally appealed to the risk of being caught and going to be punished (Stage two). Based on Gibbs' theory (1995), adolescents should reach Stage three maturity level provided that they are given enough opportunities to take the roles of others to enable them to understand alternative perspectives. The assumption for the present research was that if adolescents spend a lot of hours playing violent video games, they may show lower maturity levels because they have no time to participate in activities, such as community involvement or team work, which may provide them with opportunities to better understand the perspectives of others.

### **Criticism of Gibbs' (1994) Theory of Moral Maturity**

As Neo-Kohlberigan, Gibbs (1994) revised Kohlberg's (1983) theory of moral development by further refining the first three stages and rejecting Kohlberg's Stages 4 and 5. Krebs and Denton (2006) critiqued Gibbs' (1994) attempt to refine Kohlberg's theory stating that they found only three references to refinements and improvements in Kohlberg's model: (a) avoiding the representation of moral stages in terms of moral

philosophy, (b) explaining how structures of moral reasoning can be activated automatically, and (c) redefining stages as schemas. They argued that the first refinement failed to go far enough, the second did not pertain to global structures of moral reasoning, and the third was ambiguous. Although the Krebs and Denton critique raises some legitimate questions about Gibbs' (1994) stages of moral maturity, his theoretical approach was used in many studies of children moral development (Ferguson & Cairns, 1996; Hull, Wurm-Schaar, James-Valutis, & Trigg, 1994; Schonfeld, Mattson, & Riley, 2005).

### **Social-Learning and Social-Domain Theories of Moral Development**

A review of the social-learning and the social-domain theories of moral development are presented next to explain and describe the influence of different social agents on children's moral development.

#### **Bandura's (1989) Social-Learning Theory and Moral Development**

The social-learning theorist Bandura (1989) conceptualized moral development as a social learning process and believed that children learn what is morally acceptable through direct or symbolic stimuli and reward during the learning process. Bandura (1989) argued that two kinds of learning experiences affect moral behaviour: a direct tuition based on rewards and punishment, and observational learning based on learning moral behaviour by observing others. To Bandura (1994), examples and actions observed depend on the (a) attention processes that determine whether the child pays attention to the modeled behaviour, (b) retention processes that determine whether a child remembers modeled behaviour, (c) behavioural production processes that determine how what was seen is incorporated into a child's behaviour, and (d) motivational processes determining



the attractiveness of the modeled behaviour to the child. Alternatively, observation of behaviour may lead to the inference of rules of conduct that can be applied under different circumstances (Rosenthal & Zimmerman, 1978; Zimmerman & Weaver, 1999). Bandura (1994) defined this extrapolation of rules from exemplary as abstract modeling. For instance, through this abstract form of observational learning, children may adopt certain values by which they may henceforth judge the behaviour of others, and later internalize that behaviour as their own.

Bandura (1994) postulated that observational learning does not limit itself only to the adoption of new, presumably good moral values and behaviours; it also may enforce or weaken existing values. As such, a child's moral thinking and moral development may vary according to the content offered within the environment. Bandura (1994) stressed that any kind of media would provoke observational learning if the media drew much attention, were remembered, and were presented as attractive. It can be argued that the playing of violent video games can also enforce or weaken existing values. Recent violent video games are designed to be very attractive and, therefore, they are likely to be remembered. The question is what kind of effect they might have on children's moral values and attitudes.

Bandura (1994) developed the notion of moral disengagement as an extension of social cognitive theory. According to social cognitive theory, moral agency is governed by a self-regulatory system that includes self-monitoring of one's conduct as well as self-reaction to that conduct in light of internal moral standards. According to the theory, most people have developed personal standards of moral behaviour that serve a self-regulatory role. These standards guide good behaviour and deter bad behaviour because individuals

use their personal standards to anticipate, monitor, and judge their own actions. Behaving in ways that counter these standards results in self-censure. Thus, individuals usually behave in ways that are consistent with their internal moral standards because they anticipate their own positive and negative evaluations of possible conduct choices. However, this self-regulatory function operates only if it is activated. Bandura (1994) argued that moral self-regulation can be activated and deactivated selectively, and he proposed moral disengagement as the key deactivation process. Through moral disengagement, individuals are freed from the self-sanctions and the accompanying guilt that would ensue when behaviour violates internal standards, and they are, therefore, more likely to make unethical decisions. The theory's premise is that violence is more likely to occur when the moral standards that restrain aggression become disengaged. This disengagement is promoted by a number of cognitive processes, including (a) euphemistic labeling of violent acts, (b) distortion or minimization of the consequences of violence, (c) dehumanization of its victims, (d) justification of violence for higher moral ends, (e) displacement or diffusion of responsibility for violent acts, and (f) advantageous comparison of outcomes.

According to Deter, Trevino, and Sweitzer (2008), "Psychologists who study moral cognition and action have highlighted the importance of imagining oneself in another's place or taking the perspective of others" (p. 45). In other words, the reason such violent behaviour happens much too often is because people do not have the slightest insight to the views of their victim. Placed in the context of violent video game playing, it can be argued that players may become morally disengaged by justifying their violent action with an argument that a violent act is necessary to prevent worse suffering.

Nevertheless, the question remains: Is there a possibility that violent video game players who are freed from the self-sanctions while playing violent video games, may become morally disengaged in real life situations?

### **Criticism of Bandura's (1989) Social Learning Theory**

The social learning theory advocates that individuals, especially children, imitate modeled behaviour from personally observing others, the environment, and the media. Biological theorists criticized Bandura (1989) and argued that the social learning theory completely ignores individuals' biological differences based on genetic, brain, and learning differences. Another criticism is that the social learning theory does not take into account an overall personality assessment (Skinner & Fream, 1997). There are many factors that condition behaviour and which affect a person's thinking and cognitive processes. These are not only environmental, social, or cognitive, but rather include interaction among these processes. A person's inner character, moral beliefs, and set of values also determine and affect his behaviour (Durkin, 2006). Despite these criticisms, Bandura's (1989) social learning theory has maintained an important place in the study of aggression and violent media effects on children.

### **Turiel's (1983) Social-Domain Theory of Moral Development**

Turiel (1983, 2006) argued that children appeared to be inconsistent in their moral decisions based on moral development stage theories (e.g., Piaget 1964, Kohlberg, 1984) proposing that the moral domain is one of several domains of thought, and that moral decisions usually involve assessing and negotiating more than one domain. He suggested three domains of thought: moral, social, and personal. These domains of thinking develop from the fact that children are challenged by different forms of social experience and

quickly learn to categorize them differently. Over time, through interaction with others, they develop knowledge about themselves, society, and morality. Children's social knowledge, for example, is obtained through their interaction in social groups, such as the family, school, or with their peers. Children form conceptions about social systems and the conventions, and they develop understanding about social expectations and interactions. Different rules govern different social contexts and form social conventions. As children get older, their moral thinking in action and their judgments about what is the right or wrong action in a given situation, develop in part from an understanding that social conventions are important to the smooth functioning of society but they are not intrinsically moral. This might help in understanding why so many teenagers ignore the "no drinking and driving" law: they know that drinking and driving is wrong, but many of them can see no intrinsic harm in disobeying what they see as social convention.

According to Turiel's (1983) moral domain, children's moral judgments are derived from features inherent to social relationships including experiences involving harm to persons, violations of rights, and conflicts of competing claims. Moral prescriptions are universally applicable in that they apply to everyone in similar circumstances (Hauser, 2007). They are impersonal and they are not based on individual preferences or personal inclinations. Moral thinking is based on judgments of fairness, harm, or welfare that are a priori judgments. In other words, they do not depend on their social contexts. Thus, according to domain theory, moral and social thought are distinct; thus, they must be coordinated in real-world situations.

As Turiel (1983) explained:

Many situations calling for a behavioural decision of a moral nature also include nonmoral social components that impinge on the decision-making process. . .

Behaviour in such situations is not based solely on an application (or lack of application) of moral considerations, but would be related to the coordination of different domains of judgments. (p. 28)

Depending on individual personal interpretations of interactions in social contexts, with the body of rules and instructions received from adults, a young person will weigh the social and moral implications presented by a given situation, and use information from both the social and the moral domains to guide her or his decision-making process (Turiel & Davidson, 1986; Turel, Killen, & Helwig, 1987). Placed in the context of violent video games, it can be argued that the new social context is created in which children are faced with the new rules and etiquette that are very different from the rules in everyday life. Because individuals' social interactions are so varied, different individuals will make different moral judgments in response to the same situation (Nucci, 1997; Nucci & Turiel, 1978; Smetana, 1981).

Turiel (1983) believed that children accept the assertion of authority over conventions, despite believing otherwise about the convention itself. However, if the directive is in violation of a moral belief, that directive is considered to be wrong and may become the source of conflict within the individual. In violent video games, players are sometimes faced with the moral and social directives (e.g., justified killings to receive reward points) that may be in direct contrast with moral and social conventions in real life. The challenge is how to enable the young to address these contradictions or conflicts

in violent video games without contradicting their own moral beliefs. The implication here is that critical literacy programs intended to develop students' critical approach to different kinds of media need to pay particular attention to issues where moral content presented in media overlap social conventions by developing the abilities of the children to recognize this overlap. Based on the social-domain theories of moral development, I argue that for adequate understanding of violent video games, it is important to further research the environment created by violent video games content and the possible consequences that playing may have on adolescents' moral reasoning.

### **Moral Development in the Educational Context**

The social learning theorists (e.g., Bandura, 1989; Nucci, 1997; Turiel, 1983) conceptualize moral development as a social learning process believing that children learn what is morally acceptable through direct or symbolic stimuli and reward during the learning process. As such, children's moral thinking and development vary according to the content offered within the environment. Within the context of schools, Noddings (2006) argued that the teachers (and any other caring adults in the school system) must model how to show care for others, and provide opportunities for discourse among students in order to reach common understandings about caring for others. She called for the "confirmation of the good in others" (p. 123) and stresses the importance of developing and sustaining relationships among children, rather than focusing solely on developing traits of individualism. Nucci (1997) contended that the moral judgments of children do not stem directly from institutional social systems, but from traces inherent in social relationships, including relationships they develop with their teachers.

Weissbourd (2003) posited:

Educators influence students' moral development not simply by being good role models-important as that is-but also by what they bring to their relationships with students: their ability to appreciate students' perspectives and to disentangle them from their own, their ability to admit and learn from moral error, their moral energy and idealism, their generosity, and their ability to help students develop moral thinking without shying away from their own moral authority. (p.11)

Narvaez (2002) suggested that to become people of good character, students need opportunities to develop their intuitions in well-structured environments that provide guidance for developing proper ethical skills. Thus, teachers need professional development in explicit instruction related to the theory behind the skills they are teaching, hence, the necessity to further their theoretical understanding before implementing character education in practice. Kohlberg's (1984) cognitive development theory stressed the need for teachers to engage students in peer group discussions about relevant moral issues anticipating that students who are at the higher level of moral development would influence the moral thinking of those who are at a lower level. According to Bandura (1989), the students may adopt certain values by observing behaviours of others, and later they may internalize that behaviour as their own. Lickona (2008) argued that the teachers are responsible for creating a moral community, in which students learn to respect and care about each other so everyone feels valued within the group. Teachers are also responsible in teaching values through the curriculum by using academic subjects as vehicles for examining ethical values (Narvaez, Bock, & Endicott, 2003; Narvaez & Lapsley, 2009; Nucci, 2000). They are accountable to teach moral

reflection through reading, writing, discussion, decision-making exercises, and debate, and they teach conflict resolution to help students learn to resolve conflicts in fair, nonviolent ways (Goleman, 2004; Hansen 2001; Wentzel, 2002). Thus, the importance of teachers “ modeling good sets of values” (Noddings, 2006, p.123) through these activities may become of essence in developing moral action in students.

It is well-established that positive parental involvement in their children’s education promotes children moral development (Berkowitz, 2011; Streight, 2008; Watson, Hardie, Archbold, Gibbs, Basinger, & Fuller, 1992; Wheeler, 2008; Wentzel, 2002). Bandura (1989) stated that parents serve as models for their children who, in turn, imitate them. They are the initial source of social experiences for their children, and they provide models of moral behaviour. Okin and Reich (1999) agree positing that parents serve as “moral exemplars” (p.286). According to developmental theories of moral development (Kohleberg, 1976; Piaget 1965), parents intentionally send messages about rules for moral behaviour to their children in order to affect their moral development. They, therefore, have to be at higher levels of moral development than their children in order for the children to progress. Unfortunately, although some parents may lack the higher levels of reasoning and prosocial development needed to enhance the moral development of their children, they still remain important sources of social modeling (Bandura, 1989; Lickona, 2008; Nucci, 1997; Turiel, 1983). If parents who are social models for their children have not achieved higher levels of moral reasoning and prosocial development themselves, the probability of their children achieving such levels may be threatened. These children may be less likely to learn directly from their parents how to make good decisions, show concern for others, and take the perspective of others.



Thus, for adequate implementation of character education programs, it is of essence for teachers to involve parents and students in meaningful discussion about moral values, beliefs, and actions (Bajovic, Rizzo, & Engemann, 2009). According to Lickona (2008), it is an imperative to involve parents as partners and to foster caring beyond the classroom by using inspiring role models and opportunities for community service that can help students learn to care by giving care.

### **Media Violence and Children's Attitudes, Behaviours, and Moral Development**

A review of the various research findings proposed to explain how violence presented in the media may influence children's attitudes, behaviours, and moral development are presented next.

#### **Historical Overview of Media Violence**

The definition of violence most relevant to visual media is that violence is the exercise of physical force in order to injure or damage person(s) or property in a way that causes bodily injury and/or forcibly interferes with personal freedom (Anderson & Bushman, 2001). The presence of violence in the media has been documented throughout history. Between 2000 B.C. and 44 A.D., the ancient Egyptians entertained themselves with plays that re-enacted the murder of their god Osiris-and the spectacle, history tells us, led to a number of copycat killings. The ancient Romans were given to lethal spectator sports as well, and in 380 B.C. Saint Augustine lamented that his society was addicted to gladiator games and "drunk with the fascination of bloodshed" (The Media Awareness Network, 2005).

Since the 1950s, more than 1,000 studies have been done on the effects of violence in television and movies. In the late 50s, Lovaas, Baer, and Bijou (1965)

conducted research on preschool children and found that violent cartoon exposure may negatively influence children's play. Preschoolers who watched animation involving human-like figures that hit and bite one another choose to play with an aggressive toy (i.e., hitting doll) as opposed to a nonaggressive toy (i.e., a ball in a cage) in a greater percentage than children seeing a nonviolent cartoon. In the early 70s, Berkowitz (1975) studied violent movie effects on two groups of boys in which one group watched violent movies every night for five nights while another group of boys, under the same conditions, watched nonviolent movies. Both groups were observed every night after the movies and their interactions were rated for their frequency of hitting, choking, slapping, or kicking each other. Berkowitz (1975) observed that boys who were exposed to the violent films engaged in significantly more physical assaults than the boys who watched nonviolent movies.

Josephson (1987) conducted similar research with 7-9-year-old boys who watched either violent or nonviolent films before they played a game of floor hockey in school. Observers recorded the number of times each boy physically attacked another boy during the game. Physical attack was defined as hitting, elbowing, or shoving another player to the floor, as well as other assaultive behaviour that would be penalized in hockey. One added element in this study was that a specific cue that had appeared in the violent film (a walkie-talkie) was carried by the hockey referees and should have presumably reminded the boys of the movie they had seen earlier. Josephson found that for some boys the combination of seeing a violent film and seeing the movie-associated cue stimulated significantly more assaultive behaviour than the combination of nonviolent film and cue. These and the majority of other studies concluded that some children who watch

significant amounts of television and movie violence are more likely to exhibit aggressive behaviour, and may experience violent tendencies in their attitudes and values (Anderson & Bushman 2001; Anderson, & Dill, 2000; Berkowitz, 1993; Dahlberg & Potter, 2001; Singer & Singer, 2001).

Concerns about media violence have grown as television and movies have acquired a global audience. In 1998, UNESCO surveyed children in 23 countries around the world, and discovered that 91% of children all over the world had a television in their home, not just in the United States, Canada, and Europe, but also in the Arab states, Latin America, Asia, and Africa. More than half (51%) of boys living in high-crime and war zones chose violent action heroes as role models, ahead of any other images. UNESCO reported that the villains seem to represent the characteristics that children think are necessary to cope with difficult situations and to rely on in problem-solving situations. The notion of violence as a means of problem solving is reinforced by entertainment in which both villains and heroes choose violence as the best possible solution to resolve conflict. The Center for Media and Public Affairs (1994) which has studied violence in television, movies and music videos for a decade, reported that nearly half of all violence is committed by the "good guys." Less than 10% of the TV shows, movies, and music videos that were analyzed contextualized the violence or explored its human consequences. The violence was simply presented as justifiable, natural, inevitable, and the most obvious way to solve the problem.

### **Television and Movie Violence and Violent Behaviour**

Research on violent television and movies revealed some evidence that media violence may increase the likelihood of aggressive and violent behaviour in both

immediate and long-term contexts, and that exposure to media violence may lead children to see violence as a normal and an acceptable means for resolving conflict (Anderson et al., 2003; Anderson, & Dill, 2000; Bushman & Huesmann, 2006; Ferguson & Cairns, 1996; Huesmann & Eron, 1986; Singer & Singer, 2001). Anderson et al. (2003) stated that there is “unequivocal evidence that media violence increases the likelihood of aggressive and violent behaviour in both immediate and long-term contexts” (p. 81).

A substantial number of studies over the past half-century have examined whether exposure to violent behaviour on film or television tends to increase aggressive behaviour (Bushman & Huesmann, 2001; 2006; Huesmann, 2001; Johnson, Cohen, Kasen, & Brook, 2002; Wartella, O’Keefe, & Scantlin, 2000). For instance, Johnson et al. investigated the association of television viewing and aggressive behaviour during adolescence and adulthood over a 17-year interval. Participants were 707 families with a child (51% male) between the ages of 1 and 10, randomly sampled from two counties in northern New York State, for whom data were available through 1991-93 regarding television viewing, and through 2000 regarding aggressive behaviour. A series of comprehensive psychosocial interviews were conducted during the adolescence and adulthood of the offspring. The children in the study, randomly selected from age-eligible offspring, did the questionnaires that assessed a wide range of aggressive acts in 2000. It was found that there was a significant association between the amounts of time spent watching violent television during adolescence and early adulthood and the likelihood of subsequent aggressive acts against others in real life. This association remained significant after previous aggressive behaviour, childhood neglect, family income,

neighborhood violence, parental education, and psychiatric disorders were controlled statistically.

Many factors in the portrayal of television violence contribute to its effect on children (Bushman & Huesmann, 2001; Omar & Griffith, 2003). Bushman and Huesmann argued that the aggressive behaviour on screen that lacks consequences and is portrayed as justified may have a greater effect on children, especially if the violence is committed by an attractive or charismatic hero, and is easily related to real life experiences. According to observational learning theory (Bandura, 1989, 1994, 1999), the likelihood that a child will acquire a certain model of behaviour is increased by the model's perceived attractiveness, power, and charisma. Advertisers use this model to promote products such as tobacco (Who could forget the *Marlboro Man*?). Studies have shown that adolescents' increased exposure to such ads is associated with adolescents' positive beliefs about the product and their identification with the user (Grusec & Davidov, 2007; Grusec & Hastings, 2006).

In longitudinal research, Huesmann and Eron (1986) found that children who thought that violent shows they watched had a story about life “just like it really is” or who identified with aggressive TV characters had relatively high average scores on a measure of physical and verbal aggression one year later and scored higher on a composite measure of (physical, verbal and indirect, or relational) aggressiveness 15 years later. Exposure to media violence may also lead children to see violence as a normal response to stress and as an acceptable means for resolving conflicts (Huesmann & Guerra, 1997). Thus, children who are frequent viewers of television media violence may learn that aggression is a successful and acceptable way to achieve goals and solve

problems and they may have difficulties in using creative, imaginative approaches to expressing feelings, overcoming anger, and gaining self-control (Dahlberg & Potter, 2001). Based on the research of violence seen on television and movies and its effects on children's attitudes and behaviour, it can be argued that children's exposure to television and movie violence may as well affect their moral development.

### **Television Violence and Moral Development**

Marina Krcmar (2001), Krcmar and Curtis (2003), and Krcmar and Vieira (2005) have conducted several studies on whether watching violence on television affects children's moral reasoning. In one survey, they presented six-12-year-olds with hypothetical stories in which a perpetrator performed aggression either for reasons of protection, called justified violence, or for random reasons, called unjustified violence. Most of the children perceived the unjustified aggression to be wrong. However, children who were heavy viewers of fantasy violence programs, such as *Power Rangers*, were more likely than children who seldom watched such programs to judge the justified aggression in the stories as being morally correct. Moreover, indeed researchers have found that much of the violence in popular superhero cartoons is portrayed as justified.

In Krcmar's (2001) study, both children who watched a great deal of fantasy violence and those who watched more realistic entertainment violence, such as *Cops*, displayed less advanced levels of moral reasoning, focusing more on rules and the presence or absence of punishment in their reasoning about moral dilemmas. A follow-up study found the same pattern. Again, children who watched a great deal of fantasy violence were more likely than light viewers to perceive justified violence as morally acceptable. Heavy doses of fantasy violence also were linked with children's ability to

take on someone else's perspective. In particular, children who were heavily exposed to fantasy violence had less advanced role-taking abilities, which, in turn, predicted less sophisticated moral reasoning skills. This second study also looked at the family's influence on children's television viewing and moral reasoning. In families where parents stressed communication, children were less likely to watch fantasy violence on television and, therefore, exhibited higher moral reasoning skills. In contrast, children whose parents were more authoritarian and controlling watched more fantasy violence and had less advanced moral reasoning. Both these studies suggested that watching a great deal of violence on television may hinder children's moral development. However, it may also be that children with less sophisticated moral skills are drawn to violent programs, especially superhero shows, because their fairly simplistic storylines depict aggression as typically justified and rarely punished.

In another study, Krcmar and Curtis (2003) tested the causal effect of television on children's moral conceptions of right and wrong. Children between the ages of five and 14 were randomly assigned to one of three groups: one group watched an action cartoon that featured characters arguing and eventually engaging in violence; another group watched a similar clip involving an argument from which the characters walked away instead of fighting; and a control group did not watch television. Afterward, children listened to and judged four hypothetical stories involving violence. Children who had watched the violent program were more likely to judge violence more morally acceptable than those in the control group. They also exhibited less sophisticated moral reasoning in their responses, often relying on authority or punishment as rationales (e.g., "You shouldn't hit because you'll get in trouble"). The reaction was the same regardless

of the children's age. In fact, older children (nine to 14 years), who had seen the violent clip, displayed reasoning skills that were on par with those of younger children (five to eight years) in the control group. The experiment demonstrated that exposure to a single program containing fantasy violence may alter children's short-term moral evaluations of aggression and may even adversely affect the strategies they use to make sense of those evaluations.

In summary, some existing research suggests that extensive viewing of television and movie violence can alter children's views about the acceptability of violence and perhaps even hinder the development of their moral reasoning (Krcmar & Curtis, 2003; Krcmar & Valkenburg, 1999; Krcmar & Vieira, 2005). Such conclusions must be tentative, however, because of the paucity of studies in this area. First, nearly all the evidence was of the snapshot-in-time variety and does not permit drawing causal conclusions. In addition, the research examined only children's moral views about aggression; it has paid little attention to media's effect on other moral issues, such as altruism, and even other types of antisocial behaviour such as cheating, lying, and stealing. Finally, the focus to date has been on detrimental effects of media exposure, not on whether some programs and genres can enhance moral development.

### **Media Violence and Research Controversies**

Despite the research evidence (UNESCO, 1999) that some children may become affected in some way by media violence, other factors based on individual differences also need to be taken into account in researching violent media phenomenon. For instance, genetic predisposition affects neurocognitive functioning, temperament, and overall personality traits that affect the change in a child's behaviour (Whithecomb,



1997). Personality factors, such as temperament, appeared to have a mediating role, with some research suggesting that high-trait aggressive children were most affected (Kiewitz & Weaver, 2001; Slater et al., 2003). Therefore, the effects of violence presented in the media may account for a small proportion of an individual's predisposition for aggressive behaviour. The relative contribution of media violence to aggressive behaviour is, thus, difficult to assess. Environmental factors that play an important role in a child's development, such as family, peers, and siblings, also can influence a child's aggressive thought and behaviour (Browne, 1998; Ivory, & Kalyanaraman, 2009; Kutner, & Olson, 2008). For example, growing up in a violent family and being a victim or witnessing violence is known to have a strong effect on a person's predisposition to act aggressively. Based on this research, it is suggested that family and social factors may potentially confound the effects of media violence. In spite of these claims, Huesmann et al. (2003) argued that the effects of media violence on children and adolescents persist even when socioeconomic status, personality traits, and other social influences are taken into account, suggesting that some violent media influence is still independent of other factors.

### **Video Games: Contemporary Prevalence**

There is little doubt that video games have become an increasingly popular activity among children. A Kaiser Family Foundation survey (Roberts, Foehr, & Rideout, 2005) in United States found that 77% of boys in grades seven to 12 had played a game in the Grand Theft Auto series and nearly half (49%) had played a game in the popular Madden NFL series. In a recent study of middle school students' media habits (Olson et al., 2007), 94% reported having played video games during the preceding six months. Of

those who played video games, one third of boys and 11% of girls said they played nearly every day; 49% had played at least one Mature-rated title (intended for players age 17 and older) a lot in the previous six months. Data collected in the late 1990s in 10 European countries and Israel found that children ages six to 16 averaged more than a half hour per day on video and computer games (Beentjes, Koolstra, Marseille, & Van der Voort, 2001).

Funk (1993) examined video game playing among 357, 7th and 8th grade students. The adolescents were asked to identify their preference among five categories of video games. The two most preferred categories were games that involved fantasy violence, preferred by almost 32% of subjects, and sports games, some of which contained violent subthemes, which were preferred by more than 29%. Nearly 20% of the students expressed a preference for games with a general entertainment theme, while another 17% favoured games that involved human violence. The latest research shows that the most preferred video games are the ones with fantasy and human violence (The Canadian Teachers' Federation, 2005; The Media Awareness Network, 2004; Pollon, 2003). Pollon and Bajovic (2006) found that among the most popular video games were *Mortal Combat*, *Grand Theft Auto*, *Grand Turismo*, and *NHL 2004*. All of these games may be described as violent as either fantasy violence, human violence, or sport violence. When asked why they prefer playing video games such as *The Grand Theft Auto*, one of the boys said: "I like to play *Grand Theft Auto* because you can shoot little children and the best part is when you beat up the hookers" (Bajovic, 2006, p. 40). As disturbing as it was, it appeared that one of the possible attractions to violence in video games may lie in enjoyment of performing an act of violence without being punished.

Olson et al. (2007) found that boys and girls who regularly played at least one mature-rated game title were more likely to endorse four reasons for play: to compete and win, to get anger out, for fun, and liking the use of the guns and other weapons. Another reason often stated as a motivator for playing video games by players was a challenge (Olson et al., 2007). Olson et al. posited:

When we asked boys in focus groups what made a video game fun to play more than once, challenge was a key factor. An easy game that does not require much time or focus to beat is not as much fun. Games with multiple storylines are appealing because after finishing one storyline, a player can “beat it again”. (p. 180)

Other studies found that competition also was the greatest motivator for video game playing among the group of 8th to 11th grade students (Greenberg, Sherry, Lachlan, Lucas, & Holmstrom, 2008; Williams & Clippinger, 2002). According to Williams and Clippinger, playing video games is expected to be enjoyable only if there are a sufficient number of competitive situations. In video games, players try to resolve the task by performing effective actions which ends either with the success or the competition is lost. In both cases, the emotional state of the player is affected. When succeeding, this may lead to a strong motivation to continue to the next level and elicit positive emotions of winning, or when losing, it may produce negative emotions of anger and frustrations which also can motivate players to continue playing in order to solve the task in the next run. In both cases, competition is a leading force in continuing playing video games (Greenberg et al., 2008; Williams & Clippinger, 2002).

In the most recent research on violent video games and aggression, Adachi and Willoughby (2011) stressed that competitiveness, not violent content, may be responsible for elevating aggressive behaviour in the short-term. In a series of experiments that Adachi and Willoughby performed, in which they matched video games based on competitiveness, difficulty, and pace of action, they found that video game violence alone did not elevate aggressive behaviour. They found that video game violence was not sufficient to elevate aggressive behaviour compared with a nonviolent video game, and that more competitive games produced greater levels of aggressive behaviour, irrespective of the amount of violence in the games. It appears that competition, not violence, may be the video game characteristic that has the greatest influence on aggressive behaviour. Future research is needed to explore the mechanisms through which video game competitiveness influences aggressive behaviour, as well as whether this relation holds in the long-term.

Adolescence is a time of increased risk taking and novelty seeking (Brooks-Gunn & Reiter, 1990; Brown, 1990; Collins & Gunnar, 1990; DeVane & Squire, 2008; Dolan, 2002; Gardner & Steinberg, 2005; Spear, 2000; Steinberg, 2004; Vorder, 2003). It has been suggested that adolescents may seek out sensation-producing activities, such as video game play, for rewarding experiences. Thus, violent video game play may be an attempt to provide the adolescent with acceptable levels of arousal and adventure-seeking emotions (Jansz, 2005; Olson et al., 2008). Jansz suggested that these emotions include anger, as well as contrasting emotions such as joy and fear. He concluded that the solitude of video game play appeals to adolescents, who are faced with the insecurities of showing their real emotions at this stage of development, and that playing violent video

games gives them an opportunity to vicariously express the negative emotions that would be considered antisocial in the real world. Two other studies concurred with Jansz, stating that violent video game players enjoyed the simulated aspect of the game as an opportunity to behave or emote in a manner that is not socially acceptable in the real world (Block & Crain, 2007; DeVane & Squire, 2008). This may be another reason for video game popularity among adolescents.

### **Video Games Genre**

A video game genre refers to a particular type or classification of video games (Surette, 2002). Most video games fall within a particular category, although some of them bridge different gaming styles and could appear under more than one category. It is not unusual lately to find new games that combine features from more than one subgenre across genres. An overlapping feature in newer videogames is their hybrid design. This hybrid feature, a model that should be adopted in diverse classrooms, may be necessary to maintain the challenge for more experienced gamers (Haninger & Thompson, 2004). To an educator interested in the educational value of digital gaming, a genre-based taxonomy of videogames can be instrumental in the recognition of games that have the cognitive impact on gamers. By providing students with opportunities to convert videogame knowledge into school literacy, an educator can easily find the connection between different videogame genres and different subjects or tasks (e.g., Dance genre and Physical Education). The video game genre taxonomy is presented in the Appendix A.

### **Video Game Rating System**

The Entertainment Software Rating Board (ESRB) is a self-regulatory organization that assigns age and content ratings, enforces industry-adopted advertising

guidelines, and ensures responsible online privacy principles for computer and video games as well as entertainment software in Canada, Mexico, and the United States. They were established in 1994 by the Entertainment Software Association (formerly Interactive Digital Software Association), due to violent content found in video games, such as portraying overly violent or intense sexual situations, and assigns ratings to games based on their content. Their aim is to aid consumers in determining a game's content and suitability. A game's rating is displayed on its box, the media, in advertisements, and on the game's websites. Although the rating system is technically voluntary, nearly all video games are submitted for rating. Many retail stores prohibit the sale of unrated video games and the major console manufacturers will not license games for their systems unless they carry ESRB ratings (ESRB, 2011). Video game ratings according to ESRB are presented in the Appendix B.

### **Video Games and Gender**

During the past decade, many researchers inquired about children's video game playing patterns and habits focusing their study on question of gender preferences (Anderson & Bushman, 2001; Anderson & Dill, 2000; Copeland, 2004; Dietz, 1998; Scharrer, 2004; Woodard & Gridina, 2000). Many studies conducted in social science fields, such as psychology, report that girls and young women display less interest in video games, have less game-related knowledge, and play less frequently and for shorter durations than do boys and young men (Copeland, 2004; Dill, Gentile, Richter, & Dill, 2005; Downs & Smith, 2005; Jansz & Martis, 2007; Lucas & Sherry, 2004; Williams, 2006; Williams, Martins, Consalvo, & Ivory, 2009). Video games are liked more and played more by boys than by girls regardless of age. The Kaiser Family Foundation

(1999) national survey found that 44% of boys reported playing video games every day compared to 17% of girls. Specifically, adolescent boys spent an average of 47 minutes to an hour a day playing video games. This survey also found that eight-13-year-olds reported gender differences only in playing video games. In the use of computer for other purposes, such as searching the web or e-mailing, they did not report any gender differences.

In 2005, The Canadian Teachers' Federation (CFT) conducted research on 5,756 students in grades three-10 in every province and territory in Canada to define Canadian children's experience with communications media. They found that girls chose hanging out with friends as the most popular activity during their free time (38 % in grade 10). Only 6% of girls chose video games as their favourite activity. Boys in older grades also want to hang out with their friends, but video games remained a highly favored activity. For both genders, electronic entertainment dropped in popularity as a choice for weekend activity, but still remained twice as popular among boys as among girls (34% of boys, 16% girls in grade 10). Some researchers argued that the gender difference in video game playing patterns and habit might be due partially to access (Taylor, 2006; Woodard & Gridina, 2000). According to the annual Annenberg Public Policy Center survey (2007) on family media use, 76% of homes with at least one boy own video games as compared to 58% of homes with at least one girl. Others claimed that the gender gap in video game playing patterns and habits might have less to do with access than it does with play preference and game design. For example, video games have been criticized for having either highly sexualized or weak female protagonists that can turn away potential female players (Smith, Lachlan, & Tamborini, 2003; Taylor, 2006).

Content analyses have consistently found that video games include far more male characters than female characters that might cause girls' disinterest in the games (Heintz-Knowles et al., 2001; Smith et al., 2003). Female characters are frequently presented in games as nonessential, passive characters (Dietz, 1998; Haninger & Thompson, 2004), and are often depicted wearing revealing and provocative clothing (Dietz, 1998; Standley, 2002; Heintz-Knowles et al., 2001) indulging in sexually suggestive behaviour (Haninger & Thompson, 2004). The implications of the rarity and negative nature of female portrayals in video games can skew video game players' views of the females in the real world. These perspectives suggest that a video game landscape where women are represented infrequently and as passive, sexualized beings may influence male video players to consume and transfer these messages in real life applications (Haninger & Thompson, 2004).

Some researchers believed that the emphasis on competition and violence deters girls from playing (Funk & Buchman, 1996; Subrahmanyam et al., 2000). Subrahmanyam et al. (2000) found that girls show "an avowed dislike for aggression and preference for cooperation over competition" (p. 58). Gorriz and Medina (2000) found that girls prefer collaboration to competition and they like to play together to accomplish tasks rather than being competitive with each other. Carr (2005) investigated video games preferences of girls by observing their attitudes in a computer games club in South London. By examining these preferences through the context of games, play and culture, she found that girls rated qualities, such as being in control, content of magic and adventure, and level of difficulty, as the most important contexts of the video game. Carr stressed that, "the girls had definite ideas about desirable qualities" (p. 474). In a recent



study analyzing video-game content, Kirkland (2009) noted that many main video game characters are muscular males armed with huge weapons, wearing torn clothing, and posed in dominant, aggressive stances. As Kirkland observed:

The masculinity of video game culture, pervading broader game structures and goals, results in the predominance of violence, conquest, and militaristic action as the preferred mode of interactive engagement. All, it is argued, contributes to the reinforcement of hegemonic masculinity. (p.178)

Therefore, these male portrayals may encourage dependence in females and dominant roles in males and further deter girls from playing (Carr; 2005; Dietz, 1998; Kirkland, 2009; Williams, Consalvo, Caplan, & Yee, 2009).

Jansz (2005) believed that the possible appeal of violent video games is “attractive for male adolescents (who are) in the midst of constructing an identity” and that the violent game serves as a “safe, private laboratory where they can experience different emotions” (p. 219). These emotions include anger, as well as contrasting emotions such as joy and fear. Jansz concludes that the solitude of video game play appeals to adolescent boys, who are faced with the insecurities of showing their real emotions at this stage of development, and that playing violent video games gives them an opportunity to vicariously express the negative emotions that would be considered antisocial in the real world. Ferguson (2010) argued that historically boys have enjoyed vicarious violence, in a variety of contexts. Boys typically enjoy playing with toy soldiers, playing war games, and watching wrestling matches. Boys, in particular, often use rough-and-tumble play fighting to establish dominance and a social pecking order, with no intention to harm (Pellegrini & Long, 2003).

Olsen (2010) further explained:

Playing with those frightening images helps a child master the physical and emotional sensations that go with being afraid. Historically, that was an important and even lifesaving skill. Scary stories and games let children experience and deal with those feelings at a time and place where they know they are safe. That is why fairy tales often dealt with themes like abandonment, murder, even cannibalism, and other content we now think of as “adult.” (p.137)

Thus, the attraction to violent themes presented in video games seems to be part of normal development for boys (Przybylski, Rigby, & Ryan, 2009). Girls may be turned away to some extent from games, especially more “masculine” games; however, they do not abandon the video game experience altogether. The latest studies found that more girls become attracted to video games, thus the change in girls’ video game playing patterns and habits. The researchers from The Center for Mental Health and Media (2007) sampled 1,254 children ages 12-14 investigating video game playing habits of young teens: who they're playing with, where, how much, and why. They found that most 7th and 8th graders regularly play violent video games. Two thirds of boys and more than one in four girls reported playing at least one M-rated game "a lot in the past six months." Olson et al. (2007) found that *Grand Theft Auto*-rated M for blood, intense violence, strong language, strong sexual content, and use of drug-was the most popular game series among the boys surveyed. Surprisingly, it was also the second most popular series among the girls after *The Sims*, a game that simulates the activities of a virtual family; one in five girls aged 12 to 14 had played “*Grand Theft Auto* a lot in the past 6 months.”

Recent research suggested that the amount of female game players has increased, at least in the U.S. (Carr, 2005; ESA, 2005). According to current user data for the U.S. market (ESA, 2005), 43% of all video game players are girls. Online games as a “new” form of video game playing have been adopted by many female players as well as 44% of all online-players are female (ESA, 2005). *The Sims* success as a top selling video game has been attributed to its attractiveness to female players (Carr, 2005). This adds to the earlier discussion about the game design that usually targets male population, but recently has been shifting towards female population. Regardless of gender differences, video games are remaining an integral part of the adolescent culture and more research is necessary in order to further our understanding about this wildly used form of media.

### **Violent Video Games**

By definition, violent video games include depictions of or simulations of human-on-human violence in which the player kills or otherwise causes serious physical harm to another human; serious physical harm includes depictions of death, dismemberment, amputation, decapitation, maiming, disfigurement, mutilation of body parts, or rape (Anderson & Bushman 2001; Funk, Baldacci, Pasold & Baumgardner, 2004; Zillman & Weaver, 1999). For instance, in the *Grand Theft Auto* video game, the player becomes a minor criminal who is looking for a way to make a name for himself in the crime business. The quickest way to do so is by getting on the good side of the local criminal boss by doing all sorts of criminal activities such as jacking cars, running drugs, and killing by contract (MacDonald, 1998). Another popular violent video game is *Carmageddon*, an Internet accessible video game in which players are rewarded for

mowing down pedestrians and the sounds of cracking bones are added to the more realistic effects (Wikipedia, 2007).

A very violent game that caused a lot of controversy is *Manhunt*, a third-person stealth action game. The game consists of 20 levels, and the rating at the end of each level is affected by the gruesomeness of the killings. Players advance to the next level stealthily executing the gangs, armed forces, and deviants they face in bloody over-the-top ways (Reviews: Game Ranking). When released, this game created quite a stir, was banned in several countries, and was implicated by the media in a United Kingdom murder, although the police denied it (Kasavin, 2005). As Kasavin pointed out, “this game pushes the envelope of video game violence and shows you countless of wholly uncensored, heavily stylized carnage” (p. 3).

Another very popular violent video game is *Doom*. *Doom* is a first-person shooter game experienced through the eyes of the main character. What is interesting in this game is that the character is not named throughout the game. The game's designer, John Romero has pointed out that this is so the player feels more involved in the game: “There was never a name for the *Doom* marine because it's supposed to be YOU” (Romero, 2002). The objective of each level is simply to locate the exit room that leads to the next area while surviving all hazards on the way. Among the obstacles are demonic monsters, pits with toxic and radioactive slime, ceilings that lower and may crush the player character, and locked doors for which a keycard skull-shaped key device, or remote switch, must be located. The levels are sometimes labyrinthine and feature plenty of items such as additional ammunition, health increases (a.k.a. “power-ups”) along the way, as well as the occasional secret areas which are not immediately obvious as a

reward for players who explore more carefully. *Doom* is notable for the weapons arsenal available to the marine, which became prototypical for first-person shooters. The player character starts armed only with a brass-knuckled fists and pistol, but larger weapons, such as chainsaw, a shotgun, a rocket launcher, and a plasma rifle, can be picked up at all times. There is a wide array of power-ups, such as a backpack that increases the player character's ammunition-carrying capacity.

Being known for its high levels of violence, *Doom* has generated a lot of controversy. It has been criticized by its diabolic undertones and was dubbed as a mass murder simulator (Grossman, 2004). The game again sparked controversy throughout a period of school shooting in the United States when it was found that Eric Harris and Dylan Klebold, who committed the high school massacre in Columbine in 1999, were avid players of the game. While planning for the massacre, Harris said that the killing would be “like in *Doom*” and that his shotgun was “straight out of the game” (Porter & Starcevic, 2007). A rumor spread afterwards that Harris had designed *Doom* levels that looked like the halls of the high school, populated with representations of Harris's classmates and teachers, and that Harris practiced for his role in the shootings by playing these levels repeatedly. However, this connection so far is not scientifically proved.

Another video game released in 2005, *Super Columbine Massacre RPG*, is based on the real life massacre that took place at Columbine High School and the gamer controls the two teenagers responsible as they move about the school, shooting people and laying explosives. This game, according to creator Danny Ledonne, is a creative expression based on experiences of being bullied as a child, basing the story on real life events; all showcased through computer video gaming technology. He said that with this

video game, he hopes that the fact based approach will cause players to approach the game as “a combination of reading, playing, and thinking” about the events that took place on that day so people might better understand the cause and perhaps find a way to prevent these kinds of massacres in the future (Ledonne’s website [www.columbinegame.com](http://www.columbinegame.com)).

In the video game *Assassin’s Creed*, the player takes on the role of an assassin in the 12th century, where stealth and going unnoticed is key, and “armed with bladed weapons like swords, a retractable blade and throwing knives” (p.1; Sandoval, 2007) one must locate and take out certain targets. There are high-profile assassinations where you can simply hack away as horrified onlookers watch or low-profile assassinations where you can sneak up on your target and carefully sink your retractable knife into your target’s neck without too many people knowing what you did. The aim is to avoid being spotted by armed guards lurking around every corner, aggression is reserved until key moments, either when beating up a peasant for information or when going in for the kill.

In the *Call of Duty: Modern Warfare 2* released in 2009, (MobyGames, 2009) players assume the roles of members of an elite squadron on the trail of a Russian ultranationalist. The main protagonists in this game are Gary “Roach” Sanderson, a sergeant and a member of the multinational Task Force 141, falling under the command of Captain John “Soap” MacTavish and operating behind the scenes during the Russian invasion of the United States in 2016. Assuming the main characters’ roles, players defend the U.S. from Russian armed forces, engage in skirmishes and combat missions, and track the ultranationalists in an attempt to discover his true motivations and co-conspirators. Players use grenades, missiles, machine guns, and sniper rifles to kill enemy

soldiers throughout the battlefield. The most intense depiction of violence occurs during a “No Russian” mission where players take on the role of an undercover Ranger. Several civilians are gunned down at an airport as players are given a choice to participate in the killings; for instance, players can shoot a wounded civilian that is crawling on the ground, or walk by and observe without opening fire. In either case, civilians scream and emit pools of blood as they are shot to death. Within the multiplayer portion of the game, players can unlock “emblems” to be used on their player name cards. Some of these emblems contain images that reference drugs (e.g., a cannabis leaf; a name card with a depiction of a joint). Another game from the *Call of Duty* series, *Call of Duty: Black Ops* was released in 2010. This is a first-person shooter in which players assume the role of Alex Mason, a U.S. soldier who works for the C.I.A. and participates in both well-known and secret events during the Cold War (e.g., skirmishes, stealth espionage, assassinations, and interrogations involving torture). Players use a wide variety of weapons, such as pistols, rifles, machine guns, and explosives, to injure/kill enemies. Combat can generate pools of blood and dismembered limbs. Players can use enemy bodies as human shields and execute them at close range. In one sequence, broken glass is placed into the mouth of a man while he is repeatedly punched, causing blood to spill from his mouth (ESRB, 2010).

### **Violent Video Games, Attitudes, and Behaviours**

An attitude can be defined as a positive or negative assessment of people, objects, event, activities, ideas, or just about anything within the environment (Brady, 2007). Attitudes result from complex and selective evaluation processes, based on an individual's experience with, associated cognitions about, and affective reactions to a

situation or object (Dowler, 2003; Fazio, & Olson, 2003). Attitudes may be formed out of awareness, or with purpose and conscious effort (Olson & Fazio, 2001). According to Funk (2006), the development of attitudes towards violence is influenced by many factors including exposure to family and community violence, as well as exposure to violence in the media. Attitudes also contribute to the process of moral evaluation, especially attitudes towards violence (Bushman & Huesmann, 2006). The formation of attitudes towards violence may be influenced by many factors including the amount of exposure to violence in real life and the media (Guerra, Huesmann, & Spindler, 2003). According to Bushman and Huesmann (2006), if children develop the attitude that violence is normative, they may become desensitized to violence in real life, and if violence is presented as justified, it may change the belief that violent behaviour is wrong, which may encourage the development of proviolence attitudes.

Moeller and Krahe (2009) argue that stronger proviolence attitudes in children and adolescents may be associated with aggressive behaviour. They conducted a longitudinal study analyzing the effects of exposure to violent video games, attitudes toward violence, and aggressive behaviour and cognition with 295 German students. The mean age of the participants was 13.34 years. In a 30-month span, the researchers measured participants' violent video game patterns and habits, their normative beliefs about aggression, their aggressive behaviour, and participants' tendencies to interpret ambiguous situations in a hostile manner. The results of the 30-month longitudinal study found that participants who played violent video games for prolonged hours showed an increased amount of physical aggression and an increased acceptance of physical



aggression. Therefore, the authors concluded that for some adolescents, playing violent video games may increase proviolence attitudes, which may lead to aggressive behaviour.

Funk et al. (2004) conducted research investigating the relationships between real-life and media violence exposure, attitudes towards violence, and desensitization. In this study, 150 4th and 5th graders were asked to complete four questionnaires: (a) a background questionnaire with demographic information and questions about media use and preferences, (b) a survey with questions about real-life violence exposure across different settings, (c) an assessment of children's attitudes towards violence, and (d) a measure of children's empathy. They found that prolonged exposure to video game violence was associated with lower empathy and stronger proviolence attitudes. The authors expressed concern that intense engagement with violent video games may increase the probability that violent behaviours experienced in video games will generalize outside the game situation.

Many other researchers have expressed concern that the violence children see in video games could carry over into the real world in a form of aggressive behaviour or aggressive thoughts, desensitization to violence, and decreased empathy (Anderson & Bushman, 2001; Anderson, Gentile, & Buckley, 2007; Carnagey & Anderson, 2003; Funk et al., 2004; Henry, Swaim, & Anderson, 2003; Zillman & Weaver, 1999).

Anderson et al. (2007) stressed that repeated violent game playing may lead to the rehearsal and reinforcement of knowledge structures that are aggression-related, and may later be conceptualized into aggressive scripts. In their study, they examined the effects of video game violence exposure on a variety of factors such as verbal, physical, and relational aggression, prosocial behaviour, peer rejection, and hostile attribution bias.

Data were collected for the 3rd-, 4th-, and 5th- grade participants twice during the school year, approximately 5 months apart. Violent video game exposure scores were based on self-reported frequency and content of video game play. Participants completed additional self-report measures assessing hostile attribution bias, physical aggression, and parental involvement in media habits. Peer and teacher ratings of physical, verbal, and relational aggression, as well as prosocial behaviour and grades, were collected at both measurement times as well. The most important of the numerous findings was that video game violence exposure at Time 1 predicted physical aggression at Time 2 even when Time 1 physical aggression, total screen time, and parental involvement in media habits, as well as hostile attribution bias (as a mediating variable), and sex were statistically controlled.

### **Violent Video Games and Violent Problem-Solving Tactics**

Violent video games are a type of media violence that are of special concern because violent video games allow players to solve conflict using violent tactics. Once the violent acts in these games transpire, the player is typically reinforced via extra ammunition, gaining points, or level progression (Anderson & Bushman, 2001; Carnagey & Anderson, 2003; Gentile & Gentile, 2008; Gentile & Sesma, 2003). Repeated exposure to using such positive reinforcing aggressive problem-solving tactics is related to the formation of easily acceptable aggressive knowledge structures and scripts, physiological desensitization, and other variables, which can be related to one's aggressive personality (Anderson & Bushman, 2001; Carnagey & Anderson, 2003).

In an experimental design study conducted by Carnagey and Anderson (2003), the effects of violent video game playing on aggressive behaviour among college students

were measured. This study was designed to test the effects of video game violence (either rewarded or punished) on participants' aggressive behaviour. Participants played one of three versions of the video game *Carmageddon 2*. The original version is a racing game in which points are awarded for running over pedestrians (the reward condition). In another level, points are subtracted for running over pedestrians (the punishment condition). Finally, a version in which there were no pedestrians (nonviolent) was presented. Aggressive effect was measured with the State Hostility Scale (Anderson, Deuser, & DeNeve, 1995), on which participants rated their present feelings on a variety of hostility related dimensions (e.g., I feel furious, I feel aggravated) as well as on a 5-point Likert-type scale (strongly disagree to strongly agree). Participants who had just played a violent video game where violence was rewarded by gaining more points were more hostile when compared to nonviolent video game participants. These research findings confirmed that the repeated exposure by reinforcing aggressive problem solving tactics might become related to the formation of easily acceptable aggressive knowledge structures and scripts that may turn into hostile behaviour.

### **Violent Video Games and Identification**

Identification is a mechanism through which audience members experience reception and interpretation of the text from the inside, as if the events were happening to them. Erikson (1968) posited that the formation of identity is most crucial during adolescence when identification shifts from parents to peers and a more stable personal identity is formed. He argued that by identifying with others and imitating the behaviour of others, adolescents build their identity based on certain characteristics of others.

Erikson emphasized that:

Individually speaking, identity includes, but is more than, the sum of all successive identifications of those earlier years when the child wanted to be, and often was forced to become, like the people he depended on. Identity is a new product, which now meets a crisis to be solved only in new identifications with age mates and leader figures outside the families (p. 87).

According to Erikson, identification with others is a normal part of development that allows children and adolescents to develop into adults. Children and adolescents identify with both people and characters and try on alternative ideas, images, attitudes, and identities. In the media saturated world, children and adolescents are influenced by seductive images presented in media that may affect the formation of their identities (Cohen, 2001; Giles & Maltby, 2004). In this sense, identification becomes a mechanism through which adolescents experience reception and interpretation of the messages from the media. It is as if the events were real and were happening to them which reinforces their identification with media characters and/or events (Griffiths, Davies, & Chappell, 2004a; Oyserman, Bybee, Terry, & Hart-Johnson, 2004).

Cohen further elaborated that identification with media heroes is a mechanism by which media consumers interpret and may internalize different media messages. If identification involves internalization, it is likely that repetitive internalization of those seductive images and alternative identities of media characters may have some long-term effects on identification in real life (Cohen, 2001). This is especially true for adolescents who are in the process of forming their own identity and are susceptible to influence by media characters (DeVane & Squire, 2008; Spear, 2000; Vorder, 2003). From this

perspective, it is easy to understand the concerns of parents and educators when adolescents are surrounded by virtual peers in a video gaming environment (Giles & Maltby, 2004). Cohen described two main identification processes and defined a difference between identifying ‘with someone’ and ‘as someone.’ In video games, first-person games allow the game player to play ‘as’ a character allowing gamers to create their game character by choosing the skill level, story, dress, demographics, plot, etc.

Research suggest that self-created character attributes can heighten identification perceptions (Konijn & Hoorn, 2005), and the ability to interact with self and others inside the video game environment may influence how a player identifies with the character and his associated actions (Hoorn, Konijn, & van der Veer, 2003). Adolescents might select models that possess qualities they already have (i.e., similar models) or models that possess qualities they do not have but wish they had real heroes they can look up to (Bandura, 1989; Hoffner & Cantor, 1991; Huesmann & Eron, 1986; Oyserman et al., 2004). Therefore, identification with media heroes can be based on similarity identification and wishful identification. In similarity identification, the observer identifies with a character because they share common and perceived desirable characteristics. Most identification conceptions in media effects research are based on similarity, although identification is often measured as general liking of a character (Cohen, 2001; Hoorn et al., 2003; Zillmann, 1994). In wishful identification, the observer desires to imitate the character, either as a role model for future action or by extending responses beyond the viewing situation or imitating a particular behaviour (Hoffner & Buchanan, 2005; Hoffner & Cantor, 1991). Actually, wishful identification is closer to the concept of vicarious learning (Bandura, 1989) than is similarity identification.

Wishful identification provides a glimpse of what if, and such a glimpse is a powerful predictor of future behaviour, especially in adolescents (Cohen, 2001).

Many violent video games enable their players to enact identities of the video game characters. The feeling of being there and being present (Lee, 2004) may have consequences for the gamers' identification with violent characters represented in games. This interactivity may cause possible danger for young players in imitating aggressive acts experienced in video games to a real life situation (Durkin, 2006; Jansz, 2005). If this happens, the process of differentiation between right and wrong may become weaker; hence, the negative consequences for the development of moral reasoning may become stronger. Gentile and Anderson (2003) stated:

Identification with an aggressor increases imitation of the aggressor. It is known from research on violent television that children will imitate aggressive actions more readily if they identify with an aggressive character in some way. On television, it is hard to predict with which characters, if any, a person will identify. One might identify most closely with the victim, in which case the viewer would be less likely to be aggressive after watching. In many violent video games, however, one is required to take the point of view of one particular character. This is most noticeable in "first-person shooter" games, in which the players "see" what their character would see as if they were inside the video game. (p.135)

By playing the role of the "first person" shooter, the player is in a sense forced to identify with a violent character. In doing so, players may actually imagine being their chosen character and may react emotionally to the aggressive actions of the character and the

character's opponent, thus, activating in the individual a broad range of aggressive action tendencies. The real question of interest here is whether this identification with the aggressive character is likely to increase the possibility of imitation of the aggressive acts in a real life situation. Bushman and Huesmann (2006) argued that male adolescents with lower educational ability might be especially vulnerable because they are more likely than others to consume violent media and are also more likely to engage in aggressive behaviour.

In addition to the ability to choose one's favourite character and to act as that character in a video game, there is also a trend for players to enter the playing field as themselves, which does not happen in television or movies (Konijn, Nije Bijvank, & Bushman, 2007). A number of recent video games feature a three-dimensional walk-through format. This means that the perspective portrayed on the video-game screen is the same perspective through which human beings view real-life activities. This realistic view of the world is being mimicked in many popular games. For example, in the game *Wolfenstein 3D*, players walk through a three-dimensional environment, seeing their hands holding weapons and shooting and stabbing Nazi guards in an attempt to escape from Castle Wolfenstein. Thus, not only do video games offer a chance to choose and identify with the players in a scene, they also allow players essentially to be those characters and to experience life in the video game character's realistically portrayed world. The question that remains is how much of those imitating behaviours are transferring to real life situations.

## **Violent Video Games and Psychological Arousal**

Some studies stated that playing violent video games may increase physiological arousal. For example, Ballard and West (1996) found that a violent video game (*Mortal Kombat* with the blood turned on) resulted in higher systolic blood pressure responses than either a nonviolent game or a less graphically violent game (*Mortal Kombat* with the blood turned off). Studies measuring the effects of playing violent video games tend to show larger increases in heart rate and systolic and diastolic blood pressure compared to playing nonviolent video games (Anderson et al., 2003; Funk et al., 2002). The average effect size across studies between violent game play and physiological arousal was 0.222 (Anderson & Bushman, 2001). Lynch (1999) argued that the physiological effects of playing violent video games may be even greater for children who already show more aggressive tendencies. He found that adolescents who scored in the top quintile for trait hostility, measured by the Cook and Medley (1954) scale, showed greater increases in heart rate, blood pressure, and epinephrine and testosterone levels in the blood. Lynch also discovered the trends for increased levels of norepinephrine and cortisol in the blood for the higher hostile children. As Funk (2003) posited:

The existing argument is that some children are especially vulnerable to exposure to violent video games because of pre-existing characteristics. This high risk group includes young children (ages less than 11 to 12), children who are bullies, victims, and children with problems in emotion regulation. It has been proposed that these groups are especially vulnerable to the disruption of moral development and moral behaviour. (p.172)



The interaction with trait hostility suggests that the harmful effects of playing violent games may be even greater for children who are already at higher risk for aggressive behaviour. However, more research is needed to understand children's interactions with violent video games.

### **Violent Video Games: Points and Rewards**

In video games, as they progress, extra points, or advanced levels usually reward the players. The problem with violent video games may arise when the players receive rewards for performing action of violence. Carnagey and Anderson (2003, study 3) hypothesized that rewarding (rather than punishing) video game players for in-game violence would result in a larger increase of aggressive behaviour. They conducted an experimental study to test this hypothesis. Undergraduate participants were randomly assigned to play one of three versions of a racing game, *Carmageddon 2*. In the reward violent condition, participants were given points for running over pedestrians with their car. In the punish violent condition, participants lost points for running over pedestrians in their car. In the nonviolent condition, there were no pedestrians, making violence impossible. Before playing the game, participants wrote a brief essay on the topic of abortion. They then completed an evaluation of another essay supposedly written by another participant. Participants then played the assigned game for 20 minutes. After playing the game, participants received feedback on their essay supposedly written by the other participant. Actually, all participants rated the same essay and received the same highly insulting feedback as a provocation. Next, participants completed a modified version of the Taylor Competitive Reaction-time Task (CRT) in which they competed against a fictitious opponent (they were told it was the same person who had rated their

essay) to click a button faster in a series of competition trials. The participants were told that whoever was slower to respond on each trial would receive a noise blast through their headphones, the duration and intensity of which was to be set by their opponent before each trial. In fact, there was no opponent and the participants won and lost in a predetermined pattern of trials, receiving an ambiguous pattern of noise blast intensities and durations on the trials they lost. The duration and intensity of the noise blasts selected by the participant were combined to create the dependent measure of aggression.

Participants then completed a short questionnaire rating various aspects of the game they had played before being probed for suspicion, debriefed, and dismissed. They found that those participants who were rewarded for violence behaved more aggressively than those punished for violence. Furthermore, participants assigned to either of the violent game conditions were more aggressive than those assigned to the nonviolent game condition. To conclude, by being rewarded for their violent actions while playing violent video games, players may experience a greater increase of aggressive behaviour in real life situations (Carnagey & Anderson, 2003).

### **General Aggression Model**

Violent video game playing is one specific type of media violence and is of special concern because games allow players to solve conflicts by repeating violent actions. According to the General Aggression Model (Anderson, Gentile, & Buckley, 2007), repeated encounters with aggression may produce long-term changes in an individual through processes such as observational learning, imitation, the rehearsal and reinforcement of aggressive knowledge structures, and the extinction of initially negative emotional reactions to the sights (e.g., blood and gore) and sounds (e.g., screams of pain)

of violence. Repeated exposure to violent video games, for example, may lead to more aggressive attitudes, beliefs, scripts, perceptual and expectation schemata, and desensitization to aggression or violence. Anderson et al. (2007) assumed that repeated exposure to violent video games may increase cognitive and emotional factors known to increase the likelihood of aggression and decrease factors known to inhibit aggression. Collectively, these relatively permanent cognitive and emotional changes increase the preparedness of the individual to aggress against others. In other words, the person becomes more aggressive in general (Anderson et al., 2007).

An important process assumed by the General Aggression Model is in explaining why exposure to violent video games increases aggression is aggression-related priming. It stated that constant exposure to violent and aggressive content, through some medium (e.g., television, violent video games) causes more aggressive thoughts to be activated in memory. The thoughts that are activated in the associative memory structure branch out to activate other aggressive thoughts in memory, which continues until an entire network of cognitively related aggressive thoughts is produced. Furthermore, concepts in the associate memory that are closely linked together (e.g., gun and shoot) are going to make strong connections in that memory structure (Anderson & Dill, 2000; Bushman & Huesmann, 2006). Research conducted by Anderson and Dill (2000) found that participants who were exposed to weapon-related words (e.g., gun and knife) had more aggression-related thoughts than those who were exposed to neutral words (e.g., narrate and desert), suggesting that strong semantic associations in memory are activated and lead to more aggressive thoughts when the stimuli that is presented is violent in nature.

Applying the findings of aggression-related priming, the General Aggression Model predicted that constant exposure to violent video game content may activate more aggressive thoughts in memory. Thus, any increases in aggression (especially aggressive thoughts) that are observed after playing a violent video game could be explained. Bushman and Anderson (2009) stated that certain internal state variables (e.g., thoughts and feelings) become more aggressive due to the constant exposure of the violent content, which is explained by aggression-related priming. Therefore, the General Aggression Model incorporates aggression-related priming to explain violent video game effects.

### **Violent Video Games and Moral Reasoning**

Only a few studies examined the relations between violent video game playing and its possible effects on moral development (Funk et al., 2004; Vieira & Krmar, 2011). Funk et al. (2004) surveyed 35 children ages 8-12 (65% European American, 20% African American) and 31 children ages 5-7 (70% European American, 16% African American) to determine the short- and long-term effects of violent video game exposure on desensitization, specifically moral evaluation. First, children answered questionnaires about their experiences with and preferences for video games and about their attitudes toward violence. Next, one group of children played a nonviolent video game, and one group played violent video games. All children responded to short stories about everyday occurrences, and their responses were coded for empathy and aggression. The results showed that although playing the violent versus nonviolent video game before responding did not seem to affect children's empathy, those who had long-term experience with violent video games were less empathetic than those who did not have much experience with video games before the study.

In the most recent study, Vieira and Krcmar (2011) surveyed children age 7-15 in the United States to examine the effects of violent game play on children's moral reasoning about violence. According to this research, in order to make an appropriate moral judgment about violence, children must be able to imagine the point-of-view of both parties in the aggressive conflict (perspective taking), and must be able to feel or imagine some sympathy towards each party. The children in this study completed an online questionnaire during class time. Questions were about (a) children's exposure to violent games, (b) children's perspective taking ability, (c) their ability to sympathize, and (d) their perceptions of justified and unjustified violence. Factor analysis and structural equation modelling were used in the analysis, the latter one aiming at finding directions of the relations between the variables. The study found that prolong violent game playing was negatively associated with ability of perspective taking and ability of sympathizing with others, and the ability of perspective taking and ability of sympathy were negatively related to the perception of unjustified violence as acceptable. Thus, through negative effects on cognitive perspective taking, playing violent video games may have some negative influence on moral reasoning about violence.

According to Eron (2001), empathy and attitudes towards violence are important components of the process of moral reasoning, and if cognitive desensitization happens due to the overexposure to violent video games, it may later lead to stronger proviolence attitudes. By lowering children's empathy levels, children begin to see other human beings as objects to do things to, as in a video game, rather than other people with equal rights and feelings. It is then possible that, for some children, absorption in violent video games may result in the development of scripts for aggression that bypass the typical

process of moral evaluation. Therefore, children's moral development may be hindered by the increase of violent thoughts and feelings while playing violent video games.

### **Violent Video Games Research Controversies**

Although research conducted on the possible effects of violence in the video games have confirmed the possible negative effects on children's overall attitudes and behaviours, the research issues about the effects of violence in video games on children remain surrounded by controversy. In the systematic review of literature in North America from 1984-2000 (Bensley & Van Eenwyk, 2001), the results from 19 studies conducted on children and adolescents and their video gaming patterns and habits were reported. Nine studies included children ages 4-8 years, and 10 studies on older children, adolescents, and adults. Most of these studies were nonexperimental and were based on children's self-reports on aggression, antisocial behaviour, and mood. The conclusion of this review was that there is an association between the aggression and violent video game playing, but the evidence so far shows only a short-term rise in free-play aggression right after violent video game playing.

As stated earlier, research on violent video games implied that playing violent video games may lead to the stimulation of aggression through the imitation of violent acts and may have negative effects on children's attitudes and behaviour (Anderson & Bushman 2001; Gentile & Gentile 2008; Singer & Singer, 2001; Wagner, 2004). However, catharsis theory (Feshbach & Singer, 1971) is in direct contradiction to these claims. According to this theory, if the anger stays bottled up and the person does not get a chance to relieve the pressure caused by anger, the person will eventually explode in an aggressive rage (Breuer & Freud, 1895; Feshbach & Singer, 1971). Some authors

claimed that playing video games with violent content may have a positive effect on the players as it allows and encourages the discharge of latent aggressiveness in a socially acceptable way (Graybill, Strawniak, Hunter, & O’Leary, 1987; Henry, Swaim & Anderson, 2003). Cognitive Neoassociation theory (Arriaga-Ferreira & Ribeiro, 2001; Bartholow & Anderson, 2002; Berkowitz, 1984) opposed these claims and predicted that venting may increase rather than decrease angry feelings and aggressive behaviours. Because activities considered cathartic also are aggressive, they could lead to the activation of other aggressive thoughts, emotions, and behavioural tendencies, which in turn could lead to greater anger and aggression (Arriaga-Ferreira & Ribeiro, 2001; Bartholow & Anderson, 2003; Berkowitz, 1984).

According to Ferguson and Kilburn (2010), the influence of violent video games on acts of aggression or violence in real life is minimal. Ioannidis (2005) observed that bias is particularly prevalent in new or “hot” research fields, and that the research on violent video games certainly is of grand interest. Other researchers expressed concern that violent video game studies also have become politicized, which increases the risk for bias (Grimes, Anderson, & Bergen, 2008; Kutner & Olson, 2008; Sherry, 2007). Ferguson and Kilburn concluded that present research on violent video games overestimating and overinterpreting the influence of violent video games on aggression and violence based on the results that show only weak effects.

They argued that:

There are real risks that the exaggerated focus on VVGs, fueled by some scientists, distracts society from much more important causes of aggression, including poverty, peer influences, depression, family violence, and Gene

Environment interactions. Although it is certainly true that few researchers suggest that VVGs are the sole cause of violence, this does not mean they cannot be wrong about VVGs having any meaningful effect at all. Psychology, too often, has lost its ability to put the weak (if any) effects found for VVGs on aggression into a proper perspective. (p.177)

They believed that avoiding situating those weak findings into a proper perspective may further lead to the creation of moral panics, and serving more to misinform than to inform public debates on this issue.

### **Video Games in an Educational Context**

While violent video games have been a source of concern, some video games have the potential to have positive influences on development. Aguilera and Mendiz (2003) posited that:

Arguments in favor of the cognitive importance of video games are based on a number of studies indicating that many video games are conducive to the development of specific skills: attention, spatial concentration, problem-solving, decision-making, collaborative work, creativity, and, of course, ICT skills (p.8).

Many of these skills become necessary for successful participation in the global, knowledge based society of the 21st Century. Prensky (2001) stated that well-designed video games provide the player with clear objectives that are adaptable to the learning pace of the viewer. In the attempt to reach these objectives, not only do video games reinforce mastery of their material through immediate and constant feedback but they also provide extrinsic reinforcement (e.g., awarding points, impressive visual and sounds effects), which motivates players to continue playing. Eventually, players may develop



their skills to the point of overlearning. In other words, their performance becomes automatized so that they may focus on acquiring and utilizing new skills or applying recently acquired skills in new contexts. The application of skills in multiple contexts helps in the transfer of learning from the game to the real world (Gentile & Gentile, 2008). Because of these positive traits, video games are becoming very useful educational tools (Corbett, Koedinger, & Hadley, 2001).

There is also a research claim that the use of video games with educational content affected student achievement positively in different subject areas (Gee, 2003; Akilli, 2007; Mitchell & Savill-Smith, 2005; Norton-Meier, 2005; Owston, Wideman, Lotherington, Sinistskaya, & Brown, 2007; Prensky, 2006). Prensky (2006) found that the correlation between student achievement and use of educational games teaching reading skills was  $r = .38$ , and for math,  $r = .44$ . Many studies recognized educational video games as a technique to develop cognitive learning strategies and to build the “new learner” through “edutainment” (Blumberg & Sokol, 2004; Fromme, 2003; Hostetter, 2002). One of the important premises of video games that makes them effective at teaching is in ability to capture and hold the attention of the player (Gentile & Gentile, 2008; Levin, Nolan, Kerr, & Elliott, 2008). Well-designed video games provide the player with clear objectives that are adaptable to the learning pace of the viewer. In the attempt to reach these objectives, not only do video games reinforce mastery of their material through immediate and constant feedback but they also provide extrinsic reinforcement (e.g., awarding points, impressive visual and sounds effects), which motivates players to continue playing. Eventually, players may develop their skills to the point of overlearning. In other words, their performance becomes automatized so that

they may focus on acquiring and utilizing new skills or applying recently acquired skills in new contexts.

Some researchers posited that when put in educational context, video games become the training wheels for computer literacy (Gee 2003, 2007; Shaffer et al., 2005; Subrahmanyam et al., 2000) and, by developing these computer literacy skills, students become well prepared to succeed in the fields of science and technology. Paul Gee (2003) posited that playing a video game teaches a new literacy of images, symbols, graphs, and many other types of visual literacy. Gee (2007) further explained that:

None of this is to say that video games do these good things all by themselves, all depends on how they are used and what sorts of wider learning systems (activities and relationships) they are made a part of. The cutting edge of games and learning is not in video game technology, although great graphics are wonderful and technical improvements are important. The cutting edge is realizing the potential of games for learning by building good games into good learning systems in and out of classrooms and by building the good learning principles in good games into learning in and out of school whether or not a video game is present. (p. 61)

Video games may provide multiple positive learning opportunities and may help in developing imagination, problem-solving skills, and the skills of leadership, positive competition, and collaboration when involved in multiple players' games (Rosas et al., 2003; Russoniello et al., 2009). Norton-Meier (2005) posited that powerful learning is embedded in video games through "turn taking, risk taking, decision making" (p. 429). Norton-Meier further elaborated that video game play is "not about the teaching of facts;

it is about the action and interaction of values, dilemmas, and decisions” (p. 430). The community of game players forms meaningful learning experiences by organizing themselves around the shared goal of the game. For example, in video game *Civilization*, they organize around common goal, and by interaction with each other further develop skills, habits, and mutual understanding. By the development of game communities, the gamers develop shared set of values, and build up their social skills (Shafer, Squire, Halverson, & Gee, 2005).

Other good examples of educational games are proposed by *Games for Change*. *Games for Change* (also known as G4C) is a movement and community of practice dedicated to using digital games for social change. *Games for Change* also represents the nonprofit organization which is building the field by providing support, visibility, and shared resources to individuals and organizations using digital games for social change (Games for Change, 2012). *Games for Change* website is considered as a resource of educational or serious video games focused on social issues and social change. For example, a video game *Elude* explores the complex landscape of mood by creating a metaphorical gaming experience. The goal is to raise awareness and understanding among the friends and family members of those who suffer from clinical depression. *Passing the Ball* is another video game proposed by *Games for Change* that involves parents and their children. In this game, players are shown through a thoughtful and allegoric game of catch that adults must work with children to help them develop online safety skills. Over time, children can be armed with the knowledge to make their own decisions online and, ultimately, act as their own safeguard from dangerous content. *Guess My Race* is a quiz game that was designed to get people thinking in new ways,

allowing them to think more critically about the extremely complex issues of race, diversity, ethnicity, religion, nationality, class, and culture (Games for Change, 2012).

Research confirmed that even violent video games, when put into the educational context, may have the potential to be used as training aids in classrooms and therapeutic settings, and to provide skills in psychomotor coordination in simulations of real-life events, for example, training recruits for the armed forces (Anderson & Bushman, 2001; Griffiths, Davies, & Chappell, 2003). A good example for this can be found in *Full Spectrum Warrior*, a video game based on a U.S. Army training simulation. To survive and win the game, the player has to learn to think and act like a modern professional soldier. The player uses the buttons on the controller to give orders to two squads of soldiers, as well as to consult a GPS device, radio for support, and communicate with rear area commanders. In so doing, *Full Spectrum Warrior* shows how games take advantage of situated learning environments. According to Shaffer et al. (2005): “In games as in real life, people must be able to build meanings on the spot as they navigate their contexts” (p. 9). In these kinds of video games, players learn by direct involvement in different virtual activities within different context and develop problem-solving skills applicable to real-life situations. As Shafer et al. stated:

Video games matter because they present players with simulated worlds: worlds that, if well constructed, are not just about facts or isolated skills, but embody particular social practices. Video games thus make it possible for players to participate in valued communities of practice and as a result develop the ways of thinking that organize those practices. (p. 107)

A number of studies, both experimental and correlational, found that playing violent video games is associated with higher visuospatial acuity, perception, processing, visual memory, and mental rotation (Castel, Pratt, & Drummond, 2005; Feng, Spence, & Pratt, 2007; Ferguson, 2011; Green & Bavelier, 2003, 2006, 2007). However, the use of violent video games directly in educational settings faces several practical constraints, including time commitment limitations and teacher prejudices against video games (Ceranoglu, 2010; Rice, 2007;). Some research has suggested that video game *Word of Warcraft* may promote reading and writing achievement, including among boys who previously had little interest in such activities (Steinkuehler & Duncan, 2008; Steinkuehler & Williams, 2006). VanDeventer and White (2002) found that children who displayed expertise at mildly violent games were likely to display higher ordered thinking skills. Thus far, research on the use of violent video games within educational setting has remained in its infancy.

The new literacy advocates, such as Gee, 2001, Pahl, 2006, Prensky, 2002, Woods, 2004, and many others, explained that, the millennials, as they called this new generation, have been born in a world where traditional/print literacy no longer determines the course of cultural, political, and general societal development. Today's young learners, therefore, require a new framework for literacy instruction, which acknowledges both the fluid and dynamic nature of literacy, whose meanings are subject to change according to the cultural context and societal needs (Bandura, 2002). And bringing educational video games in our classrooms will, indeed, fulfill these social needs within the cultural context.

As Turkle (2010) pointed out:

There is nothing mindless about mastering a video game. The games demand skills that are complex and differentiated. Some of them begin to constitute socialization into the computer culture: you interact with a program, you learn how to learn what it can do, you get used to assimilating large amounts of information about structure and strategy by interacting with a dynamic screen display. And when one game is mastered, there is thinking about how to generalize strategies to other games. There is learning how to learn. (p.503)

While many students in our classrooms are video game players, many teachers have limited experiences with video game playing (Gee, 2005; Prensky, 2001). Selfe and Hawisher (2007) described that many teachers mainly see video games as entertainment and use them in school as a reward for hard work. Because of their impoverished gaming history, many teachers do not consider games as anything more than an incentive for good behaviour. This may explain why some teachers do not either fully actualize or even understand their roles with respect to video game integration (Schrader & Lawless, 2010; Schrader, Zheng, & Young, 2006). However, if teachers' perceptions about educational games remain only on their personal experience with video games, the state of games in education is at risk of remaining unchanged. Selfe and Hawisher (2004) argued that teachers' perception of video games as entertainment may mitigate their perception of games as educational tools. This may imply that the teachers need more opportunities through professional development trainings to learn about video games, and to directly experience video game playing in order to perceive the possible applications of such tools in the classrooms.

To effectively communicate with today's learners, pre-digital educators whom Prensky (2001) referred to as "digital immigrants," need to become more aware and more knowledgeable of the new forms of media to which students are exposed. It is also important for teachers to be informed about possible effects of video games in order to avoid the influences on media moral panics related to violent video games. By incorporating video gaming research into their curriculum, teachers expand their awareness of the instructional merit of video games as well as the important underlying theoretical foundations of learning in video gaming contexts (Young, Schrader, & Zheng, 2010).

### **Summary of the Chapter**

In this chapter, the theories on media violence, cognitive-development, and social-domain theories of morality were presented. The phenomenon of video games with the special emphasis on violent video games was addressed, and the research on effects of media violence on children's attitudes, behaviours, and moral development were reviewed. Media violent theories presented in this study postulated that the exposure to violence presented in different forms of media may become an important factor influencing the behaviour, attitudes, and beliefs of children who spend a significant amount of time exposed to violent media. Theory of desensitization suggested that repeated exposure to media violence might alter emotional reactions that may result in desensitization to the consequences of real-life violence (Carnagey et al., 2007; Eisenberg, 2000; Funk et al., 2003). In script theory, Huesmann (1998, 2001, 2002) argued that children who are exposed to a great deal of violence, either in real life or in

media, would develop cognitive scripts that promote aggression as a way of solving problems.

Some existing research suggests that extensive viewing of television and movie violence can alter children's views about the acceptability of violence and perhaps even hinder the development of their moral reasoning (Krcmar & Curtis, 2003; Krcmar & Valkenburg, 1999; Krcmar & Vieira, 2005). According to developmental moral theories, (Gibbs, 1994, Kohlberg, 1984; Narvaez, 2002; Piaget 1932; Power, Higgins & Kohlberg, 1989; Rest et al., 2000), moral reasoning concerns a specific aspect of moral judgment and how children differentiate between right and wrong. According to moral development theories, is a stage when major changes in moral development take place (Beauchamp & Childress, 2001; Gibbs, 2003; Kohlberg 1984; Piaget 1965; Richardson, 2003). At this stage, adolescents tend to believe that good behaviour means having good motives and interpersonal feelings such as love, empathy, trust, and concern for others. Moral reasoning at this stage has moved beyond the need for individual approval, to adhere to a central ideal or ideals that often prescribe what is right and wrong.

The social learning theorists (e.g., Bandura, 1989; Nucci, 1997; Turiel, 1983) conceptualize moral development as a social learning process and believe that children learn what is morally acceptable through direct or symbolic stimuli and reward during the learning process. In social-domain theories, moral reasoning is developed in accordance with the child's interaction with socializing agents in different social settings (Nucci, 1997; Turiel, 1983). Depending on individual personal interpretations of interactions in social contexts, with the body of rules and instructions received from adults, a young person will weigh the social and moral implications presented by a given situation, and



use information from both the social and the moral domains to guide her or his decision making process (Turel, Killen, & Helwig, 1987; Turiel & Davidson, 1986).

Research on violent television and movies revealed some evidence that media violence may increase the likelihood of aggressive and violent behaviour in both immediate and long-term contexts, and that exposure to media violence may lead children to see violence as a normal and an acceptable means for resolving conflict (Anderson et al., 2003; Anderson & Dill, 2000; Bushman & Huesmann 2006; Ferguson & Cairns, 1996; Huesmann & Eron, 1986; Singer & Singer, 2001). According to the General Aggression Model (Anderson et al., 2007), repeated encounters with aggression may produce long-term changes in an individual through processes such as observational learning, imitation, the rehearsal and reinforcement of aggressive knowledge structures, and the extinction of initially negative emotional reactions to the sights (e.g., blood and gore) and sounds (e.g., screams of pain) of violence. Thus, repeated exposure to violence presented in media may lead to more aggressive attitudes, beliefs, scripts, perceptual and expectation schemata, and desensitization to aggression or violence.

Video games have become a very popular activity among children, and, according to existing research, they like to play video games to compete and win, to get anger out, for fun, and entertainment (Greenberg et al., 2008; Olson et al., 2007; Williams & Clippinger, 2002). The most popular video games were video games that contained fantasy and human violence (Bajovic, 2006; Funk, 1993; Roberts et al., 2005). In addressing gender differences in video game playing patterns and habits, existing studies reported that girls display less interest in video games, have less game-related knowledge, and play less frequently and for shorter durations than boys (Copeland, 2004; Dill,

Gentile, Richter, & Dill et al., 2005; Lucas & Sherry, 2004; Downs & Smith, 2005; Janz & Martis, 2007; Lucas & Sherry, 2004; Williams, 2006; Williams et al., 2009).

In the media saturated world, children are influenced by seductive images presented in media that may affect the formation of their identities (Cohen, 2001; Giles & Maltby, 2004). If identification involves internalization, it is likely that repetitive internalization of media seductive images and alternative identities of media characters may have some long-term effects on identification in real life (Cohen, 2001). This is especially true for adolescents who are in the process of forming their own identity and are susceptible to influence by media characters (DeVane & Squire, 2008; Mitchell & Ziegler, 2007; Spear, 2000). Many violent video games enable their players to enact identities of the video game characters. The feeling of being there and being present (Lee, 2004) may have consequences for the gamers' identification with violent characters represented in games. This interactivity can cause possible danger for young players in imitating aggressive acts experienced in video games to a real-life situation (Durkin, 2006; Jansz, 2005). If this happens, the process of differentiation between right and wrong may become weaker; hence, the negative consequences for the development of moral reasoning may become stronger.

Violent video game playing is one specific type of media violence and is of special concern because games allow players to solve conflicts by repeating violent actions. The General Aggression Theory stated that constant exposure to violent and aggressive content, through some medium (e.g., television, violent video games) causes more aggressive thoughts to be activated in memory (Anderson & Dill, 2000; Bushman & Huesmann, 2006) and players may become more aggressive due to the constant

exposure of the violent content. Only a few studies examined the relations between violent video game playing and its possible effects on moral development (Eron, 2001; Funk et al., 2004; Vieira & Krcmar, 2011). Common findings of these studies was that through negative effects on cognitive perspective taking, playing violent video games may have some negative influence on moral reasoning about violence; therefore, children's moral development may be hindered by the increase of violent thoughts and feelings while playing violent video games.

While violent video games have been a source of concern, some video games have the potential to have positive influences on development (Gee, 2003, 2005; Prensky, 2001; Selfe & Hawisher 2007; Subrahmanyam et al., 2000). Video games in educational context may provide multiple positive learning opportunities and may help in developing imagination, problem-solving skills, and the skills of leadership, positive competition, and collaboration when involved in multiple players' games (Rosas et al., 2003; Russoniello et al., 2009). Research confirmed that even violent video games, when put into the educational context, may have the potential to be used as training aids in classrooms and therapeutic settings, and to provide skills in psychomotor coordination in simulations of real-life events, for example, training recruits for the armed forces (Anderson & Bushman, 2001; Griffiths, 2000; Griffiths, Davies, & Chappell, 2003).

A great deal of research has focused on the influences of violent video game play on aggressive emotions, thoughts, and behaviour (Anderson & Buchman, 2001; Dill & Dill, 1998; Zillmann, 2000). However, little is known about the influence of violent video game play on adolescents' moral reasoning. The reviewed literature supported the need for more research on violent video game playing to determine if there is relationship

among adolescents' violent video game playing patterns and habits, their levels of moral reasoning, and their attitudes toward real violence.

### CHAPTER THREE: METHODOLOGY

In this chapter, the methodological approach and design of the study are described. A mixed methodology was employed exploring quantitative and qualitative data derived from research participants' responses. Participants in this study were 109 grade 8 students, 61 boys and 48 girls, mean age  $M=13.1$  from seven public elementary schools in Ontario. Participants' quantitative responses were derived from three research instruments designed to measure participants' video game playing attitudes, patterns, and habits, their moral maturity, and their attitudes towards real violence. The qualitative approach was utilized to explore participants' video game playing attitudes, patterns, and habits based on qualitative responses to open-ended questions in a self-reporting questionnaire, an unstructured follow-up interview, and field notes. Eight primary research questions were addressed:

1. What are adolescents' video game playing patterns and habits?
2. What attitudes and feelings do adolescents report during and after violent video game playing?
3. What beliefs do adolescents describe about violence in video games and violence in real life?
4. Do adolescents report identification with video game characters and what are the personality traits they admire the most in their favourite video game characters?
5. What are adolescents' levels of sociomoral reasoning (SRMS) and what are their attitudes towards real violence (ATV)?
6. Is there a statistically significant relationship between adolescents' violent video game playing patterns and habits and their levels of moral reasoning/maturity?

7. Is there a statistically significant relationship between adolescents' violent video game playing patterns and habits and their attitudes towards real violence?
8. Is there a statistically significant difference between adolescents who play violent video games and those who do not play with regards to their levels of moral reasoning/maturity and their attitudes towards violence?

### **Two Stages of Data Collection**

The data collection took place in two stages: (a) administering a battery of three research instruments, and (b) a follow-up interview. The two stages of data collection are presented next.

#### **First Stage**

The first stage consisted of administering a battery of three tests: a self-reporting background questionnaire (Appendix C) with open and closed questions designed to explore participants' video games patterns, habits, and attitudes (designed by the researcher); The Sociomoral Reflection Measure–Short Form (SRM–SF; Gibbs et al., 1992) to measure participants' moral maturity (Appendix D); and The Attitudes Towards Violence Scale - Adolescent Version (Funk, Elliott, Urman, Flores, & Mock, 1999) to measure adolescents' attitudes towards real violence (Appendix E).

#### **Second Stage**

In the second stage of the study, a follow-up unstructured, open-ended interview was conducted and the interview protocol was used (Appendix F) with 10 participants who consented to participate with the intention to provide in-depth information about participants' (a) video gaming attitudes, patterns, and habits; (b) moral reasoning; and (c)

attitudes towards violence. The field notes were collected throughout both stages of data collection.

### **Rationale for Mixed Method Research Design**

A mixed method research design is a procedure for collecting, analyzing, and mixing both quantitative and qualitative research and methods in a single study to explore and understand a research problem thoroughly (Bryman, 2004; Creswell, 2008; Creswell & Plano Clark, 2007; Onwuegbuzie & Teddlie, 2003; Tashakkori & Teddlie, 1998, 2003). Quantitative data are data in numerical form, often derived from questionnaires or structured interviews, which yield specific numbers which can be statistically analyzed. The quantitative approach tends to be associated with the postpositivistic paradigm, and employs strategies of inquiry, such as experimentation and survey, and methods of data collection that are predetermined measures resulting in numeric data. Qualitative data are descriptive data from observation or unstructured interviews (Baxter & Jack, 2008; Bryman, 2004; Darlington & Scott, 2002). The qualitative approach tends to be associated with constructivist or the transformative-emancipatory paradigms, employs strategies, such as the case study or narrative, and uses methods or data collection such as the interview resulting in open-ended data textual data (Denzin & Lincoln, 2005; Guba & Lincoln, 1988; Patton, 2002; Yin, 2003). Creswell (2008) explained:

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both

quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches together provides a better understanding of research problems than either approach alone.

(p. 5)

The mixed methods approach is associated with the pragmatic paradigm and strategies that involve collecting data in a simultaneous or sequential manner using methods that are drawn from both quantitative and qualitative traditions in a fashion that best addresses the research questions (Bryman, 2004; Creswell, 2003; 2008; Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2003). According to Tashakkori and Teddlie (2003), there are three areas where a mixed method is superior to a mono-methods approach. First, it is in the ability to answer research questions that other approaches cannot; mixed methods can answer simultaneously confirmatory and exploratory questions. Second, they provide stronger inferences through depth and breadth in answer to complex social phenomena. And third, they provide the opportunity through divergent findings for an expression of differing viewpoints.

According to Creswell (2008), the main advantages of mixed methods are in providing more comprehensive evidence for studying a research problem than either quantitative or qualitative research alone, and help answer questions that cannot be answered by qualitative or quantitative approaches alone. Creswell (2008) stated that mixed methods research encourages the use of multiple worldviews or paradigms rather than the typical association of certain paradigms for quantitative researchers and others for qualitative researchers. It is also practical in the sense that the researcher is free to use all methods possible to address a research problem. According to Creswell (2008) and



Creswell and Plano Clark (2007), the main disadvantages of mixed methodology are time consuming to collect and analyze both quantitative and qualitative data, and researchers are often trained in only one form of inquiry (quantitative or qualitative), while mixed methods require that they know both forms of data. In the present study, the quantitative and qualitative data were collected sequentially in two phases and an explanatory mixed method design was employed. An explanatory mixed method design consists of first collecting quantitative data and then collecting qualitative data to help explain or elaborate on the quantitative results (Creswell, 2008; Creswell & Plano Clark, 2007). The rationale for this type of research design was in the fact that the quantitative data and results provided a general picture of the research problem, but more analyses through qualitative data collection and results helped in refining and further explaining the research problem.

### **Participants**

A convenience sample of 109 grade 8 students (age mean,  $M=13.1$ ), 61 boys and 48 girls from seven public elementary schools located in Ontario participated in this study. The students in grade 8 were in the process of completing their passage from childhood to young adulthood, the adolescence stage considered as the time of a great change on many levels (Brooks-Gunn & Reiter, 1990; Brown, 1990; Collins & Gunnar, 1990; DeVane & Squire, 2008; Mitchell & Ziegler, 2007). These changes include dramatic biological changes, social changes, and major psychological changes linked to increasing social and moral maturity. As such, they represented the perfect match for the present study, as the researcher was interested in adolescents' video game playing patterns and habits, their stage of moral development, and the attitudes towards violence.

### **Defining Groups**

For the purpose of this study, two groups of players were identified: the group that played violent video games, and the group that did not play violent video games. The researcher used frequency counts to determine participants' video game playing patterns, habits, and attitudes based on their responses in the self-reported questionnaire. These frequency counts provided information about (a) the amount of time participants declared playing video games, (b) what kind of video games they played often, and (c) what their favourite video games were. The violent video game playing group included participants who (a) declared playing video games between one to three hours every day, (b) declared playing violent video games, (c) selected violent video games as their favourite games that they played often, and (d) reported enjoyment in playing violent video games. The nonviolent video game playing group was comprised of the participants who declared playing nonviolent video games either between one to three hours every day, every other day, few times per week, few times per month, or on the weekends. They also selected nonviolent games as the games they played often, and they chose nonviolent games as their favourite games. This group also involved participants who declared not playing video games at all.

### **Research Instruments**

A battery of three tests: a self-reporting background questionnaire (Appendix C) with open and closed questions designed to explore participants' video games patterns, habits, and attitudes (designed by the researcher); The Sociomoral Reflection Measure—Short Form (SRM-SF; Gibbs et al., 1992) to measure participants' moral maturity (Appendix D); and The Attitudes Towards Violence Scale - Adolescent Version (Funk,

Elliott, Urman, Flores, & Mock, 1999) to measure adolescents' attitudes towards real violence (Appendix E) are presented next.

### **Background Questionnaire**

Questionnaires are a type of self-report method which consists of a set of questions usually in a highly structured written form (Creswell, 2008). In the present study, a self-reporting pencil and paper questionnaire with 21 questions, five pages long (Appendix C) was designed by the researcher to determine participants' video game playing patterns and habits. This questionnaire was based on The Media Self-Report Questionnaire (Elliott, 2006) used in longitudinal project investigating children's media preferences and habits across various media modalities and the impact of media on values, beliefs, and worldviews. The present research study replicated the questions that focused on video games patterns and habits.

Prior to data collection, the self-reporting questionnaire was pilot tested for clarity and six adolescents were recruited through the researcher's acquaintance. The six adolescents (age 13) were contacted by phone and the researcher explained the purpose of the questionnaire and asked them if they were willing to complete it. The researcher also explained that they did not need to submit finished questionnaires to the researcher and that the main purpose was checking for clarity. Upon agreement, the questionnaires were emailed to them, and they were asked to read each question carefully for understanding. After they finished, they called the researcher and described their overall experience with each question. According to their responses, none of the questions appeared confusing or unclear.

The self-reported questionnaire contained closed and open-ended questions, and questions based on a Likert Scale. Closed questions were questions which provided a limited choice; for example, a participant's age or Yes or No questions (e.g., Do you play video games?, Have you ever played any violent video games?, Do you enjoy playing violent video games?) Closed questions asked specific, narrow questions and enabled collection of numerical data from participants. Open-ended questions gave an opportunity for participants to provide their own answers and provided more in-depth responses from the participants which enabled the researcher to gather more in-depth understanding of participants' video gaming patterns, habits, and attitudes. Open-ended questions asked the participants for his or her knowledge, opinion, or feelings, and the questions *describe* or *explain* were presented (e.g., Are there some elements of violence in the video games that you do not like at all? Please Describe; Have you ever heard through the media about any real life situations that may have been influenced by violent video games? Please Explain). Participants were also asked to describe their attitudes, feelings, and beliefs about violence presented in video games and violence in real-life situations (e.g., Have you ever personally been involved in real life situations that may have been influenced by violent video games?). There were also questions related to identification designed to determine participants' possible identification with video game characters and to establish the reasons behind that possible identification (e.g., Do you sometimes wish to be like your favourite video game character? Which of the following personality traits do you admire the most in your favourite video games: brave/courageous, persistent, funny, smart, attractive, aggressive, and dominant)

Likert Scale questions were in the form of statements and the participants decided how strongly they agree or disagree with the statements provided (e.g., I play video games because: It is fun; It is exciting; It helps me relax...etc. with the scale being Agree, Disagree, Not Sure). Data gained from a Likert Type scale were quantitative data that provided information about how strongly a participant felt about video games patterns, habits, and attitudes. The main purpose of the self-reporting questionnaire was to determine participants' video game playing patterns, habits, and attitudes. After the data analyses of the results obtained with the self-reporting questionnaire, it was possible to determine and identify a violent and nonviolent group of video game players.

### **Sociomoral Reflection Objective Measure-Short Form (SRM-SF)**

The Sociomoral Reflection Measure-Short Form (SRM-SF; Gibbs et al., 1992) elicits reasoning concerning moral values that are representative of the moral domain: life, law, affiliation, contract, truth, and social justice (Appendix D). The SRM-SF uses 11 brief, lead-in statements (e.g., "Let's say a friend of yours needs help and may even die, and you're the only person who can save him or her"; or, "Think about when you've made a promise to a friend of yours"). The lead-in statements are followed by evaluation questions; for example, "How important is it for a person (without losing his or her own life) to save the life of a friend? Circle one: very important/important/not important." The participants are also asked to elaborate on their statements and the elaborative answers were used for coding and the analyses. Responses to the SRM-SF questions were scored by consulting the appropriate chapter in the reference manual provided by the author of the instrument. Questions one through four addressed contract and truth values and are scored using the criteria provided in chapter 4 (Contract and Truth). Questions five and

six pertained to chapter five (Affiliation), questions seven and eight pertained to chapter six (Life), questions nine and 10 pertained to chapter seven (Property and Law), and question 11 pertained to chapter eight (Legal Justice). The basic idea of SRM-SF scoring is to assess the developmental level of questionnaire responses in accordance with the criteria in the reference manual.

All 11 items are scored, and the summary of all scores were calculated, and the primary score in the SRMS-SF assessment represented the Sociomoral reflection maturity level based on the mean of all items scored. The levels of sociomoral maturity ranged from The Immaturity level, which represents Stage one (Unilateral and Physical) and Stage two (Exchanging and Instrumental), to The Maturity level which represents Stage three (Mutual and Prosocial) and Stage four (Systematic and Standard). The SRM-SF evidences acceptable levels of reliability (interrater, test-retest, internal consistency) and validity (criterion-related, construct). For example, the SRM-SF demonstrated good concurrent validity ( $r = .69$ ) with the Moral Judgment Interview instrument (Colby & Kohlberg, 1987), and comparable age trends in samples from Italy (Gielen, Comunian, & Antoni, 1994), Northern Ireland and Sweden (Ferguson, McLernon, & Cairns, 1994). The measure correlates with theoretically relevant variables such as social perspective-taking (Mason & Gibbs, 1993) and prosocial behavior (Gielen, Comunian, & Antoni, 1994). Its discriminant validity is supported by its consistent identification of the samples as developmentally delayed in moral judgment (Barriga, Gibbs, Potter, & Liao, 2001; Gavaghan, Arnold, & Gibbs, 1983; Gregg, Gibbs, & Basinger, 1994). Relative to the Moral Judgment Interview instrument (Colby & Kohlberg, 1987), the SRM-SF is group-administrable, takes less time to complete, requires less inferential scoring time (25 to 30

minutes versus 30 to 60 minutes to score a transcribed Moral Judgment Interview instrument protocol), and is accompanied by adequate self-training materials (Gibbs, 1995).

### **The Attitudes Towards Violence Scale-Adolescent Version**

The Attitudes Towards Violence Scale-Adolescent Version is a 15-item scale developed by Funk et al. (1999) and it measures adolescents' attitudes towards violence (Appendix E). The scale measures attitudes towards reactive violence and culture of violence. Items reflecting reactive violence are related to an individual's response to an immediate threat such as "If a person hits you, you should hit them back". The culture of violence reflects attitudes that would be expected to be resistant to change such as "It's okay to do whatever it takes to protect myself." The response format follows a three-point Likert scale. The response format was coded as: agree, disagree, and not sure. Disagree responses were given a score of three. Agree responses were given a score of one. Neutral responses were given a score of two. The scale ranges from 15-45, with 45 being the highest score (each item ranges from a score of one to three). The scores greater than one standard deviation are considered to be a high score (ATV scores greater than 27.90). This means that participants with the score higher than 27.90 are considered to demonstrate high proviolent attitudes in real life. Based upon Funk and Buchman's (1996) study, the scale demonstrates good internal reliability with a Cronbach's alpha of .86, which means that a measure is consistent within itself. The internal reliability of self-report measures, such as psychometric tests, can be assessed using the split half method. This involves splitting a test into two and having the same participant doing both halves of the test. If the two halves of the test provide similar results, this would suggest that the

test has internal reliability (Creswell, 2003). According to Funk and Buchman, the ATV test also demonstrates good internal reliability.

### **Research Procedure**

A mixed methodology research procedure employing and exploring quantitative and qualitative data derived from research participants' responses is presented next.

#### **Quantitative Phase**

In this particular phase, three different research instruments were used: A Self-Reporting Questionnaire (Appendix C) with demographic information (e.g., age, gender), and questions about participants' violent video game playing, patterns and habits designed by researcher. The questions from the self-reporting questionnaire were quantitative in nature and were analyzed at this stage. Gibbs' Sociomoral Reflection Objective Measure-Short Form (Appendix D) was used to determine the differences in participants' sociomoral reasoning, and The Attitudes Towards Violence Scale-Adolescents' version (Appendix E) (Funk et al., 1999) was used to measure participants' attitudes towards real violence.

#### **Quantitative Data Collection**

Upon collection of signed consent forms for participation, the researcher visited school sites and arranged with teachers the time and place for participants to do the three questionnaires. All quantitative data were collected in the similar manner in each school. Participants were taken to an empty classroom and the necessary procedural information was provided by the researcher. Participants were reminded that at any point they were allowed to withdraw from participation if they felt uncomfortable with the questions or if



they got tired. All participants were able to finish their questionnaires in approximately 30-40 minutes.

### **Quantitative Data Analyses**

Upon collection, the quantitative data were entered and analyzed in the Statistical package for Social Science (SPSS). In order to determine participants' video game playing patterns and habits, a descriptive statistical procedure was employed aiming to quantitatively summarize a data set (Creswell, 2003, 2008; Creswell & Plano Clark, 2007). In order to establish the amount of time that participants spent on playing video games, a descriptive statistics procedure of frequency distribution and cross tabulation was performed. A frequency distribution was used to summarize how often different scores occurred within a sample of scores. Cross tabulation is a combination of two (or more) frequency tables arranged such that each cell in the resulting table represents a unique combination of specific values of cross-tabulated variables. Cross tabulation allowed examination frequencies of observations that belong to specific categories on more than one variable. By examining these frequencies, the identification of relations between cross-tabulated variables was determined (Creswell, 2003, 2008; Creswell & Plano Clark, 2007).

The chi-square test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories (Creswell, 2008). The chi-square analysis in this study was performed to determine whether there was a significant difference between boys and girls in their video game patterns and habits, and their scores on The Sociomoral Reflection Measure-Short Form (SRMS) and The Attitudes Towards Violence Scale (ATV). In order to determine the

relationship among the variables, or the degree of association among variables, an explanatory correlational research design was performed. An explanatory research design is a correlational design in which the researcher investigates to what extent two (or more) variables co-vary (Creswell, 2003; 2008). In using explanatory correlation design, the researcher correlated the association between two or more variables, all participants were part of one group (e.g., grade 8), and at least two scores (e.g., Scores on SRMS and ATV) were obtained for each individual in the group. The research report was based on the correlation statistical test, and the researcher made interpretations from the statistical test results (Creswell, 2008; Creswell & Plano Clark, 2007). The statistic that expressed a correlation as a linear relationship was the product-moment correlational coefficient, or simple ' $r$ ' and the statistic was calculated for two variables by multiplying the  $z$  scores on  $X$  and  $Y$  for each case and then dividing by the number of cases minus one.

In this particular study, an explanatory correlation procedure was used in relating two scores which were scores on The Sociomoral Reflection Measure-Short Form (SRM-SF; Gibbs et al., 1992), and scores on adolescents' video game playing patterns and habits from self-reporting questionnaire to determine the relationship between levels of adolescents' moral reasoning and the amount of time they spent playing violent video games. An explanatory correlation procedure was also used in relating the scores on The Attitudes Towards Violence Scale-Adolescent Version (ATV; Funk et al., 1999) and scores on adolescents' video game playing patterns and habits from the self-reporting questionnaire to determine the relationship between adolescents' attitudes toward violence and the amount of time they spent playing violent video games.

To determine the difference between the means on The Sociomoral Reflection Measure test and The Attitudes Towards Violence Scale tests between the participants who play violent video games and participants who do not play violent video games, a statistical procedure of the independent samples T-test analysis was performed. The independent samples T-test is analysis most commonly used to compare the actual difference between two means in relation to the variation in the data. The independent samples T-test assesses whether the means of two groups are statistically different from each other (Creswell, 2002). The independent samples T-test analysis in the present study was used to compare the means of two groups, violent video game playing group and nonviolent video game playing group on their video game playing patterns and habits, and on the scores on two tests: SRMS and ATV tests. In order to determine the interaction between two dependent variables: SRMS scores and ATV scores, an analysis of Binary Logistic Regression was performed. Binary Logistic Regression is a statistical analysis used to determine whether independent variable has a unique predictive relationship to dependent variable (Creswell, 2003). Logistic regression provided knowledge of the relationships and strengths among the variables.

### **Qualitative Phase**

In this particular phase, a qualitative data based on open-ended questions from self-reporting questionnaire, the interview data, and the field notes were analyzed. All responses to qualitative questions were entered in *Ethnograph* (*Ethnograph v5.0 Software for Text Based Qualitative Analyses*) software programs for analysis. *Ethnograph v5.0* is a versatile computer program that searches and notes segments of interest within the data

and marks them with code words and identifiers for further analyses. The questions that are qualitative in nature were coded and analyzed for descriptions and themes.

A follow-up unstructured, open-ended interview was conducted with the participants who consented to participate. The intention of this interview was to provide in-depth information about participants' video gaming attitudes, patterns and habits, their moral reasoning, and their attitudes towards violence. For this purpose, an interview protocol (Appendix F) was designed with the questions that emerged during and after data collection and contained instructions for the process of the interview, the questions to be asked, and provided space to take notes on responses from the interviewee. The interview protocol (list of questions) sought answers to questions that were similar to those on a written questionnaire, and it provided the opportunity to gather richer and more detailed responses, probe for further information, and clarify any confusing issues. During the interview, participants were asked to further elaborate on their video game patterns and habits, video game preferences, their perception on violence in video games, and violence in real life.

### **Interview Data Collection**

The one-on-one interviews took place approximately one month after the quantitative data were collected and preliminary analyses were performed. In the preliminary analyses, the researcher used frequency counts to determine participants' video game playing patterns, habits, and attitudes based on their responses in the self-reported questionnaire. These frequency counts provided information about (a) the amount of time participants declared playing video games, (b) what kind of video games they played, and (c) what their favourite video games were. This analysis served in the

selection of participants for an interview. Ten participants were selected for an interview based on their responses to the self-reporting questionnaire. Five participants were randomly selected from the violent video game playing group. The violent video game playing group included participants who (a) declared playing video games between one to three hours every day, (b) selected violent video games as the games they played often, (c) indicated violent video games as their favourite video games to play, (d) declared playing violent video games, and (e) enjoyed playing violent video games. Another five participants were randomly chosen from the nonviolent video game playing group. The nonviolent video game playing group included participants who declared playing nonviolent video games for less than one hour to three hours every day, every other day, few times per week, few times per month, or on the weekends, selected nonviolent games as the games they played often, and chose nonviolent games as their favourite games to play. The rationale behind the selection was the need to obtain richer data from violent and nonviolent video game playing groups about their video game patterns, habits, and attitudes, their perception on violence in video games, and their perception on violence in real life.

Prior to the commencement of each interview, permission was obtained by the researcher through a letter of consent from participants' parents or guardians. Each interview was conducted in a face-to-face setting, in an empty classroom provided by the teachers, and in an area secluded enough to protect participants' confidentiality. Brief notes were taken during the interviews, as necessary, to emphasize any nonverbal emotional reactions that were not recorded by audiotape (Glesne, 2006). An interview protocol was focused on the questions that emerged in participants' responses in the

questionnaires and was used to help the researcher to conduct the interview. Each interview lasted approximately 30 minutes and was audio recorded. Upon collection, all interviews were transcribed by the researcher and entered in *Ethnograph 5.0* Software for Text Based Qualitative Analyses. *Ethnograph 5*. Creswell (2008) posited that interview data, once collected, needs to be reduced, or categorized into units of information. In this study, interview data were reduced and sequentially organized, coded, and sorted using *Ethnograph 5* software program for analysis.

### **Field Notes**

Filed notes are a method of qualitative research created when observing a culture, setting, or social situation, by the researcher in order to record the behaviors, activities, events, and other features of the setting being observed (Denzin & Lincoln, 2005). Field notes are meant to be read by the researcher to produce additional meaning and understanding (Creswell & Plano Clark, 2007). While in the field, the researcher in the present study jotted down a few words or short sentences that helped her recall the important observations. The researcher completed the notes and conducted preliminary analysis in order to identify emerging themes immediately after the data collection and interviews. The field notes were coded manually, and the content was analyzed and added to the study.

### **Ethics**

A research proposal including letters of information and consent form were sent to the Brock Research Ethics Board for approval. Upon receiving Research Ethics Board approval from the Brock Research Ethics Board (Appendix G), a research proposal, letter of information, and consent forms were sent to the Research Officer at the participating

School Board according to board policy. When board consent was granted, the principals and teachers at each of the schools were contacted and research start time was negotiated. The letter of information and consent form were sent home to each student in targeted classrooms for parents/guardians to sign. At this point a 173 consent forms were distributed in seven different classrooms. In that letter, all the research requirements including time required completing the questionnaires, student/school confidentiality, and the voluntary nature of this program was explicitly outlined. Also included in this package was a consent form that explicitly outlined the time associated with the research project, student/school confidentiality, interview procedures, and the voluntary nature of this project. A 109 students returned consent forms signed by their parents or guardians and those participants were included in the study.

### **Compensation for Participants**

The participants did not receive any monetary or tangible compensation for their participation in the study. However, it was expected that all individuals would benefit from participating in this study and would find the process to be an enjoyable experience. For instance, discussing the purpose of this study may provide students and teachers with the opportunity to make a meaningful connection between their personal lives and sections of the Ontario curriculum related to media and media studies (Ontario Ministry of Education, 1997) and Character Education strategies (Ontario Ministry of Education, 2007).

### **Privacy and Confidentiality**

Each student who participated in this study was assigned a numerical code for the purposes of identification (e.g., 2S16). This code appeared on any numerical data

collected throughout the study. It was clearly explained to parents, teachers, and students that any reporting of findings associated with this study (either in the context of the schools/school board or academic journals/conferences) would contain only the average scores and other group information and that the real identities would be protected at all times.

### **Summary of the Chapter**

This chapter outlined the methodology and procedures that were employed in investigating relationships between adolescents' video games patterns and habits, their levels of moral reasoning, and their attitudes towards violence. The description of the research methodology, procedure, participants, data analyses, and study limitations were explained in order to provide an understanding in how this study examined these relationships. The results of the data collected using the described methodology are presented in Chapter Four. The results were derived using descriptive statistics (cross tabulations and frequencies), inferential statistics (correlation, independent samples T-test), and content analyses (open-ended questions, interviews, and field notes).



## CHAPTER FOUR: PRESENTATION OF RESULTS

The major purpose of this study was to determine if there was a relationship among participants' violent video game playing patterns and habits, their levels of moral reasoning, and their attitudes toward real violence. The participants were 109 grade 8 students, mean age ( $M = 13.1$ ) from seven public elementary schools in Ontario. Eight primary research questions were addressed:

1. What are participants' video game playing patterns and habits?
2. What attitudes and feelings do participants report during and after violent video game playing?
3. What beliefs do participants describe about violence in video games and violence in real life?
4. Do participants report identification with video game characters and what are the personality traits they admire the most in their favourite video game characters?
5. What are participants' levels of sociomoral reasoning (SRMS) and what are their attitudes toward real violence (ATV)?
6. Is there a statistically significant relationship between participants' violent video game playing patterns and habits and their levels of moral reasoning/maturity?
7. Is there a statistically significant relationship between participants' violent video game playing patterns and habits and their attitudes toward real violence?
8. Is there a statistically significant difference between participants who play violent video games and those who do not play with regards to their levels of moral reasoning and their attitudes towards violence?

In order to determine participants' video game playing patterns and habits, descriptive statistics were employed aiming to quantitatively summarize a data set (Creswell, 2003, 2008; Creswell & Plano Clark, 2007). A frequency count was used to summarise how often different scores occurred within a sample of scores. Cross-tabulation was performed to analyze the relationship between two or more variables. Cross-tabulation allowed the examination of frequencies of observations that belong to specific categories on more than one variable. By examining these frequencies, the identification of relations between cross-tabulated variables was determined (Creswell, 2003; Creswell & Plano Clark, 2007). The chi-square test was used to determine whether there was a significant difference between the expected frequencies and the observed frequencies in one or more categories (Creswell, 2008). The chi-square analysis was performed to determine whether there was a significant difference between boys and girls in their video game patterns and habits, and their scores on SRMS and ATV tests. Cross-tabulation allowed the examination of frequencies of observations that belong to specific categories on more than one variable. By examining these frequencies in present study, the identification of relations between cross-tabulated variables of video game patterns and habit was determined (Creswell, 2003; Creswell & Plano Clark, 2007).

In order to determine the relationship among the variables, or the degree of association among variables, an explanatory correlational research design was performed. In order to determine the relationship between the amount of participants' violent video game time played and SRMS and ATV scores, a bivariate correlation procedure was performed. A bivariate correlation is a statistical test that measures the association or relationship between two variables. The Pearson product-moment correlation coefficient

was calculated to measure the correlation (linear dependence) between two variables, X and Y, giving a value between +1 and -1 inclusive.

To determine the difference between the means on SRMS and ATV tests between the participants who play violent video games and participants who do not play violent video games, a statistical procedure of the independent samples T-test analysis was performed. The independent samples T-test is analysis most commonly used to compare the actual difference between two means in relation to the variation in the data. The independent samples t-test assesses whether the means of two groups are statistically different from each other (Creswell, 2002). The independent samples T-test analysis in present study was used to compare the means of two groups, violent video game playing group and nonviolent video game playing group on their video game playing patterns and habits, and on the scores on two tests: The Sociomoral Reflection Measure–Short Form (SRM-SF; Gibbs et al., 1992) to measure participants’ moral maturity (Appendix D); and The Attitudes Towards Violence Scale -Adolescent Version (ATV; Funk et al., 1999) to measure participants’ attitudes towards real violence (Appendix E). Independent samples T-test was also conducted to compare means of hours of violent video game playing and the scores on the Sociomoral Reflection Measure tests for violent video game playing group. In order to determine the interaction between two dependent variables: The Sociomoral Reflection Measure scores and The Attitudes Towards Violence Scale scores, an analysis of Binary Logistic Regression was performed. Binary Logistic Regression is a statistical analysis used to determine whether independent variable has a unique predictive relationship to dependent variable (Creswell, 2003).

In order to define violent video game playing group and nonviolent video game playing group, the researcher used frequency counts to determine participants' video game playing patterns, habits, and attitudes based on their responses in the self-reported questionnaire. These frequency counts provided information about (a) the amount of time participants declared playing video games, (b) what kind of video games they played, and (c) what their favourite video games were. In defining violent and nonviolent video game playing groups, the violent video game playing group included participants who (a) declared playing video games for one to three hours every day, (b) declared playing violent video games, (c) selected violent video games as their favourite games that they played often, and (d) reported enjoyment in playing violent video games. The nonviolent video game playing group included participants who declared playing nonviolent video games from less than one hour to three hours every day, every other day, few times per week, few times per month, or on the weekends. They also selected nonviolent games as the games they played often, and they chose nonviolent games as their favourite games. This group also involved participants who declared not playing video games at all. The responses below represent major findings from these research questions as they have emerged through the data analyses based on the results of the three research instruments, the interviews, and the field notes.

### **Participants' Video Game Patterns and Habits**

The self-reporting questionnaire consisted of 21 questions and was used to assess participants' self-reporting experiences with video game playing in general, and with violent video game playing specifically. The self-reporting questionnaire contained closed and open-ended questions, and questions based on a Likert Scale. Closed

questions were questions which provided a limited choice-for example a participant's age or Yes or No questions (e.g., Do you play video games?, Have you ever played any violent video games?, Do you enjoy playing violent video games?) Closed questions asked specific, narrow questions and enabled collection of numerical data from participants. Open-ended questions gave an opportunity for participants to provide their own answers and provided more in-depth responses from the participants which enabled the researcher to gather more in-depth understanding of participants' video gaming patterns, habits, and attitudes. Open-ended questions asked the participants for his or her knowledge, opinions, or feelings, and the questions *describe* or *explain* were presented (e.g., "Are there some elements of violence in the video games that you do not like at all? Please describe", "Have you ever heard through the media about any real life situations that may have been influenced by violent video games? Please Explain"). Participants were also asked to describe their attitudes, feelings, and beliefs about violence presented in video games and violence in real-life situations (e.g., "Have you ever personally been involved in real-life situations that may have been influenced by violent video games?"). There were also questions related to identification designed to determine participants' possible identification with video game characters and to establish the reasons behind that possible identification (e.g., "Do you sometimes wish to be like your favourite video game character? Which of the following personality traits do you admire the most in your favourite video games: smart, successful, attractive, funny, dominant, aggressive, brave/courageous, male, female, persistent/never gives up, or other"?).

Likert Scale questions were in the form of statements that allowed the participants to decide how strongly they agreed or disagreed with the choices on the scale. (e.g., "I

play video games because: It is fun; It is exciting; It is something to do when I am bored; I enjoy competing; I like the challenge of figuring it out; It helps me relax; I like using guns and weapons; I feel less lonely; It helps me vent my anger.”). Data gained from a Likert Type scale were quantitative data that provided information about how strongly a participant felt about video games patterns, habits, and attitudes.

For the question “Which of the following video games do you play?”, a frequency scale was used to determine how frequently the participants declared playing various video games. A three-point frequency scale included answers “often, rarely, never.” The following choices of video games were offered: *Call of Duty: Modern Warfare*, *FIFA10*, *NHL series*, *Need for Speed*, *Super Mario Galaxy 2*, *Rock Band3*, *Grand Theft Auto: San Andreas*, *Sims*, *Prince of Persia: The Forgotten Sands*, *Monster Hunter Tri*, *Madden NFL*, and *Word of Warcraft*. The offered video game choices were based on the most popular video games based on the Gamerankings.com, research by Olson et al., (2007), The Media Awareness Network (2005), and The Canadian Teachers’ Federation (2005). An open-ended question was also provided to enable participants to write video game choices not offered in the question.

In order to determine participants’ video game playing patterns and habits, and participants’ violent video game playing patterns and habits, the following questions from the self-reporting questionnaire were analyzed at this stage:

1. Do you play video games?
2. How often do you play video games?
3. Which of the following video games do you play?
4. What are your two favourite video games?

5. Have you ever played any violent video games?

6. Do you enjoy playing violent video games?

Descriptive statistic procedures were employed to quantitatively summarize the data set (Creswell, 2003, 2008; Creswell & Plano Clark, 2007). The data in SPSS were analyzed, and cross-tabulation and frequencies were performed.

1. Do you play video games?

In order to determine if participants played video games, a frequency analysis was used to summarize how often different scores occur within a sample of scores. The results are shown in Table 1. According to the results, 96/109 (88%) participants reporting playing video games, while 13 (12 %) declared that they did not play video games at all. Among those who declared played video games were 58/61(95%) boys and 38/48 (79%) girls, three boys and 10 girls declared not playing video games at all. The chi-square analysis was conducted to determine whether there was a significant difference between boys and girls on playing video games. The percentage of participants who played video games did not significantly differ by gender,  $\chi^2(1, N = 109) = 6.47, p = .12$ . Therefore, the majority of participants declared playing video games.

2. How often do you play video games?

In order to determine the amount of time that participants played video games, cross-tabulation was performed. Cross-tabulation allowed the examination of frequencies of observations that referred to amount of time participants declared playing video games. The results are presented in Table 2. Based on the results, 59/109 (54%) participants declared playing video games every day from less than one hour to three or more hours. In this group there were 49/61 boys (80%) and 10/48 girls (21%).

Table 1

## Frequency of Video Game Playing

	All participants		Boys		Girls	
	n	%	n	%	n	%
Yes	96	88%	58	95%	38	79%
No	13	12%	3	5%	10	21%
Total	109	100%	61	100%	48	100%



Table 2

## Amount of Time Playing Video Games

	Less than 1 hour	1 hour	2 hours	3 or more hours	Total
	n	n	n	n	n
Every day					
Boys	2	19	20	8	49
Girls	2	6	2	0	10
Total	4	25	22	8	59
Every other day					
Boys	2	4	5	2	13
Girls	3	2	2	1	8
Total	5	6	7	3	21
Few times per week					
Boys	3	5	5	5	18
Girls	2	8	3	3	16
Total	5	13	8	8	34
Few times a month					
Boys	1	4	3	6	14
Girls	6	4	4	2	16
Total	7	8	7	8	30

Table continues

	Less than 1 hour	1 hour	2 hours	3 or more hours	Total
	n	n	n	n	n
On weekend					
Boys	2	4	3	12	21
Girls	5	2	1	3	11
Total	7	6	4	15	32

In the group that declared playing video games every other day, there were 21/109 (19 %) participants, 13/61 (21%) boys, and 8/48 (17%) girls. In the group that declared playing video games a few times per week, there were 34/109 (32%) participants, 18/61 (29%) boys, and 16/48 (33%) girls. There were 30/109 (28%) participants who declared playing video games a few times a month, 14/61 (23%) were boys, and 16/48 (33%) were girls. There were 32/109 (29%) participants (21/61 or 34% were boys, and 11/48 or 23% were girls) who declared playing video games only on weekends. The results revealed that more than a half of all the participants (54%), played video games every day for less than one hour to three hours or more a day. In this group of video game players, boys were predominant (49/61 boys).

A chi-square test of independence was performed to examine the relation between gender and amount of video game playing. The results are presented in Table 3. The percentage of participants who played video games for less than one hour to three or more hours a day significantly differ by gender,  $\chi^2(1, N = 109) = 45.0, p = .00$ . According to percentages, boys spent more hours playing video games per day than girls. The percentage of participants who played video games every other day for less than 1 hour to 3 hours, did not significantly differ by gender  $\chi^2(1, N = 109) = 1.68, p = .79$ . The percentage of participants who played video games for less than 1 hour to 3 hours a few times a week did not significantly differ by gender  $\chi^2(1, N = 109) = 1.98, p = .73$ . The percentage of participants who played video games a few times a month for less than 1 hour to 3 hours, did not significantly differ by gender  $\chi^2(1, N = 109) = 7.11, p = .13$ . The percentage of participants who played video games for less than 1 hour to 3 hours on weekend did not significantly differ by gender  $\chi^2(1, N = 109) = 7.01, p = .73$ .

Table 3

Crosstabulation of Gender and Video Game Time Play

					Boys		Girls				
					n		n				
Amount of play	Less than 1 h		1 hour		2 hours		3 or more hours			$\chi$	$\Phi$
Every day	2	2	19	6	20	2	8	0	45.0	.00	
Every other day	2	3	4	2	5	2	2	1	1.68	.79	
Few times a week	3	2	5	8	5	3	5	3	1.98	.73	
Few times per month	1	6	4	4	3	4	6	2	7.11	.13	
Weekend	2	5	4	2	3	1	12	3	7.01	.73	

Therefore, boys and girls differ significantly only on the amount of time playing video games every day between less than an hour to 3 or more hours, showing that boys spent more time playing video games daily compared to girls.

### 3. Which of the following video games do you play?

To analyze this question, a frequency analysis was performed to determine how frequently the participants declared performing a certain type of video game. A 3-point frequency scale included answers often, rarely, never. The following choices of video games were offered: *Call of Duty: Modern Warfare*, *FIFA10*, *NHL series*, *Need for Speed*, *Super Mario Galaxy 2*, *Rock Band3*, *Grand Theft Auto: San Andreas*, *Sims*, *Prince of Persia: The Forgotten Sands*, *Monster Hunter Tri*, *Madden NFL*, and *Word of Warcraft*. The offered choices of video games were based on the most popular video games (The Canadian Teachers' Federation, 2005; Gamerankings.com; The Media Awareness Network, 2005; Olson et al., 2007). An open-ended question was also provided to enable participants to write video game choices other than those offered in the question.

In determining what kind of video games participants reported playing, a frequency count was used to summarise how often different scores occurred within a sample of scores and the results are presented in Table 4. The percentages presented below were based on combined results of participants' gender, selections of offered choices, and their responses to the open-ended question regarding video game preferences. In the category of other choices, the following games were identified by participants: *Mario Party 5* (13%), *Halo* (9%), *Grand Theft Auto 4* (4%), *Zelda* (5%), and *Grand Tursimo 4* (4%).

Table 4

## Frequency of Video Games Played

	Often		Rarely		Never	
Video games	n	%	n	%	n	%
<i>Call of Duty series</i>						
Boys	31	51%	18	30%	12	20%
Girls	5	10%	13	27%	30	62%
Total	36	34%	31	28%	42	38%
<i>NHL Series</i>						
Boys	18	30%	15	25%	28	46%
Girls	0	0%	12	25%	36	75%
Total	18	16%	27	26%	64	58%
<i>Madden NFL</i>						
Boys	13	21%	12	20%	36	59%
Girls	0	0%	5	10%	43	90%
Total	13	12%	17	16%	79	73%
<i>Rock Band 3</i>						
Boys	6	10%	21	34%	34	56%
Girls	7	15%	14	29%	27	56%
Total	13	12%	35	32%	71	64%

Table continues

	Often		Rarely		Never	
Video games	n	%	n	%	n	%
<i>Grand Theft Auto: San Andreas</i>						
Boys	11	18%	15	25%	35	57%
Girls	2	4%	9	19%	37	77%
Total	13	12%	24	22%	72	66%
<i>The Sims</i>						
Boys	3	5%	17	28%	41	67%
Girls	10	21%	8	17%	30	62%
Total	13	12%	25	23%	71	65%
<i>Need for Speed</i>						
Boys	9	15%	24	39%	28	61%
Girls	2	4%	9	19%	37	77%
Total	11	10%	33	31%	65	59%
<i>Super Mario Galaxy 2</i>						
Boys	3	5%	12	20%	46	75%
Girls	8	17%	16	33%	24	50%
Total	11	10%	28	26%	70	64%

Table continues

	Often		Rarely		Never	
Video games	n	%	n	%	n	%
<i>FIFA 10</i>						
Boys	4	7%	10	16%	47	77%
Girls	2	4%	4	8%	42	88%
Total	6	5%	14	13%	89	82%
<i>Prince of Persia: The Forgotten</i>						
Boys	4	6%	3	5%	54	89%
Girls	1	2%	2	4%	45	94%
Total	5	5 %	5	5%	99	90%
<i>Monster Hunter</i>						
Boys	3	5%	4	6%	54	89%
Girls	0	0 %	0	0%	48	100%
Total	3	3%	4	4%	102	93%



According to the results, the games that were played most often were: *Call of Duty* series (34%), *Super Mario* series (23%), *NHL* series (16.5%), *Grand Theft Auto* series (16.5%), *The Sims* (12%), *Rock Band* (12%), *Madden NFL* (12%), and *Halo* (12%). The results revealed that most popular and most played video games are first-person shooter genre video games (*Call of Duty* series), platform genre (*Super Mario* series), and the sports genre (*NHL* and *NFL* series). A chi-square test of independence was performed to examine the relation between gender and video game played. Based on the results, boys and girls significantly differ in the following video game selections: *Call of Duty* series  $\chi^2(1, N = 109) = 26.1, p = .00$ , *NHL* series  $\chi^2(1, N = 109) = 24.7, p = .00$ , *Madden NFL*  $\chi^2(1, N = 109) = 15.1, p = .01$ , *Super Mario* Series  $\chi^2(1, N = 109) = 11.1, p = .04$ , and *The Sims*  $\chi^2(1, N = 109) = 23.1, p = .01$ . Based on the results, first-person shooter genre video games (*Call of Duty* series) and sports genre video games (*NHL* and *NFL* series) were most popular among boys, while platform genre video games (*Super Mario* series), and simulation genre video games (*Sims*) were most popular among girls.

#### 4. What are your two favourite video games?

In order to determine participants' two favourite video games, a frequency analysis was performed to summarize how often different scores occur within a sample of scores. The results are presented in Table 5. The results revealed that the video games that participants' chose as their favourite are the same video games that participants declared playing most often: *Call of Duty: Black Ops* (51%), *Super Mario* series (25%), *NHL* series (16.5%), *Grand Theft Auto: SanAndreas* (12%), *The Sims* (14%), and *Call of Duty: Modern Warfare* (10%). Thus, *Call of Duty* series, a first-person shooter genre were the most popular among participants.

Table 5

Crosstabulation for Favourite Video Games

Video game choice	All participants N=109		Boys N=61		Girls N=48	
	n	%	n	%	n	%
<i>Call of Duty: Black Ops</i>	55	51%	49	80%	6	12%
<i>Super Mario Series</i>	27	25%	3	5%	24	50%
<i>NHL 2</i>	18	16%	16	26%	2	4%
<i>Grand Theft Auto</i>	13	12%	11	12%	2	4%
<i>The Sims</i>	14	13%	3	5%	11	18%
<i>Call of Duty: Modern Warfare</i>	11	10%	10	17%	1	2%

A chi-square test of independence was performed to examine the relation between gender and favourite video game choices. Based on the results, boys and girls significantly differ in favourite video game selection  $\chi^2(1, N = 109) = 23.0, p = .00$ . The results revealed that favourite video games for boys were first-person shooter genre video game (*Call of Duty series*), and the Sports genre (*NHL series*). Favourite video games for girls were platform genre video games (*Super Mario series*), and simulation genre video game (*Sims*).

### **Violent Video Game Playing Patterns and Habits**

In order to determine participants' violent video game patterns and habits the additional two questions from the self-reporting questionnaire were analyzed:

5. Have you ever played any violent video games?
6. Do you enjoy playing violent video games?

Descriptive statistical procedure of frequency and cross-tabulation was employed in order to determine participants' violent video game playing patterns and habits.

According to the results, 94/109 (86%) participants declared that they played violent video games. Among participants who declared playing violent video games 59 (98%) participants were boys, and 35 (73%) participants were girls. A chi-square test of independence was performed to examine the relation between gender and playing violent video games. Based on the results, boys and girls significantly differ in playing violent video games selection  $\chi^2(1, N = 94) = 12.8, p = .00$ . When asked about enjoyment while playing violent video games, 75/109 (69%) of all participants reporting enjoying playing violent video games. Within this group, 54 (88%) participants were boys, and 21 (42%) participants were girls. A chi-square test of independence was performed to examine the

relation between gender and enjoyment in playing violent video game. Based on the results, boys and girls significantly differ in declaring enjoyment in playing violent video games  $\chi^2(1, N = 75) = 25.9, p = .00$ . Therefore, most of the participants declared playing violent video games, and more than a half of all participants reported enjoying playing violent video games. More boys than girls reported playing violent video games and more boys declared enjoyment while playing violent video games.

### **Defining the Violent and Nonviolent Video Game Playing Groups**

In order to define the violent video game playing group and nonviolent video game playing group, an analyses of cross-tabulation was performed to determine frequencies and relations among participants' declared hours of video game playing, participants' video game patterns and preferences, and stated enjoyment in playing violent video games. By examining these frequencies, the identification of relations between cross-tabulated variables was determined. The violent video game playing group included participants who declared playing video games for one to three or more hours every day, selected violent video games as the games they played often, indicated violent video games as their favourite video games to play, declared playing violent video games, and enjoyed playing violent video games. The nonviolent video game playing group included participants who declared playing nonviolent video games from less than one hour to three hours every day, every other day, few times per week, few times per month, or on the weekends. They selected nonviolent games as the games they played often, and chose nonviolent games as their favourite games to play. This group also involved participants who declared not playing video games at all.

The results revealed that 48/109 (44%) of participants declared playing violent video games between one to three hours every day, chose violent video games as their favourite games and the games they played often (*Call of Duty Series, Grand Theft Auto Series*), declared that they have played violent video games, and declared enjoyment while playing violent video games. These 48 participants (43 boys, 5 girls) were identified as violent video game players for the purpose of this study. Within the violent video game playing group, three participants (2 boys, 1 girl) were excluded from the sample due to missing data on the SRMS and ATV tests; thus, the analyses were based on 45 participants (41 boys, 4 girls). There were 61 participants (18 boys, 43 girls) identified as the nonviolent video game playing group. Within the nonviolent video gaming group, 10 participants were excluded (1 boy, 9 girls) due to missing data on the SRMS and ATV; therefore, the nonviolent video gaming group comprised 51 participants (17 boys, 34 girls).

### **Video Game Playing: Attitudes and Feelings**

In order to address research questions about participants' reported attitudes and feelings during and after video game playing, the following questions from the self-reporting questionnaire were analyzed: 1. I play these video games because..., and 2.

How does playing violent video games affect your mood?

1. I play these video games because...,

Participants were asked to indicate the choice on a 3-point Likert-type scale (agree, disagree, not sure). This question was related to previous questions about two favourite video games. The choices were: "It is fun," "It is exciting," "It is something to do when I am bored," "I like the challenge of figuring it out," "It helps me relax," "I like

using guns and weapons, “I feel less lonely,” and, “It helps me vent my anger.” A frequency analysis was used to summarise how often different scores occur within a sample of scores. The results were presented in Table 6. According to the results, 93 (85%) of participants played video games for fun (56 boys, 37 girls), 80 (73%) played video games for excitement (48 boys, 32 girls) and 80 (73%) participants (49 boys, 32 girls) played video games when they were bored. Also, 68 (62%) participants (38 boys, 30 girls) played video games because of the challenge that the games present, 36 (33%) participants (25 boys, 11 girls) played video games because it helped them to relax, 35 (32%) participants (33 boys, 2 girls) played video games because they liked using guns and weapons, 31 (28%) participants (22 boys, 9 girls) played video games because it helped them vent their anger. A small percentage of participants declared playing video games because it made them feel less lonely (19 or 12.4%; 15 boys, 4 girls). Therefore, most of the participants declared playing video games for fun, excitement, and when they were bored.

A chi-square test of independence was performed to examine the relation between gender and participants' reasons for playing video games. The percentage of participants who played video games because they like using guns and weapons in the games significantly differ by gender,  $\chi^2(1, N = 109) = 30.9, p = .000$ . The percentage of participants who played video games because it helped them vent their anger significantly differ by gender,  $\chi^2(1, N = 109) = 13.1, p = .001$ . The percentage of participants who played video games for fun  $\chi^2(1, N = 109) = 9.03, p = .161$ , for excitement  $\chi^2(1, N = 109) = 9.45, p = .055$ , and for playing video games when they were bored,  $\chi^2(1, N = 109) = 4.47, p = .107$  did not significantly differ by gender.

Table 6

## Frequency for Reasons Behind Playing Video Games

	Agree		Disagree		Not Sure	
	n	%	n	%	n	%
It is fun						
Boys	56	92%	2	3%	3	5%
Girls	37	77%	0	0%	11	23%
Total	93	85%	2	2%	14	3%
It is exciting						
Boys	48	80%	5	8%	8	13%
Girls	32	67%	0	0%	16	33%
Total	80	73%	5	5 %	24	22%
It is something to do when I am bored						
Boys	49	80%	5	8%	7	12%
Girls	31	65%	4	8%	13	27%
Total	80	73%	9	8 %	20	18%
I like the challenge of figuring it out						
Boys	38	62%	11	18%	12	20%
Girls	30	63%	2	4%	16	33%
Total	68	62%	13	12%	28	26%

Table continues

	Agree		Disagree		Not Sure	
	n	%	n	%	n	%
It helps me to relax						
Boys	25	41%	20	33%	16	26%
Girls	11	23%	12	25%	25	52%
Total	36	33%	32	29%	41	38%
I like using guns and weapons						
Boys	33	54%	16	26%	12	20%
Girls	2	4%	29	60%	17	36%
Total	35	32%	45	41%	29	27%
It helps me vent my anger						
Boys	22	36%	36	59%	3	5%
Girls	9	18%	25	52%	14	30%
Total	31	28%	61	56%	17	16%
I feel less lonely						
Boys	15	25%	40	66%	6	9%
Girls	4	8%	33	69%	11	23%
Total	19	12%	73	67%	17	16%



The percentage of participants who played video games for competition  $\chi^2(1, N = 109) = 3.83, p = .147$ , because of the challenge presented in the video games  $\chi^2(1, N = 109) = 6.28, p = .054$ , and because they felt less lonely while playing video games,  $\chi^2(1, N = 109) = 7.06, p = .059$ , did not significantly differ by gender. Therefore, boys and girls differ significantly on two reasons for playing video games: using guns and weapons presented in video games, and playing video games because it helped them vent their anger. According to the percentages, boys predominantly chose these two reasons for playing video games.

## 2. How does playing violent video games affect your mood?

Participants were asked to indicate their choices on a 3-point Likert-type scale (agree, disagree, not sure). The choices were: “It makes me feel excited;” “It makes me feel competitive;” “It doesn’t affect my mood;” “It makes me feel relaxed;” “It makes me feel aggressive;” “It makes me feel angry.” A frequency was performed and the results were presented in Table 7. According to the results, 54 (50%) participants (39 boys, 15 girls) declared that playing video games made them feel excited, 52 (48%) participants (34 boys, 18 girls) declared that playing violent video games made them feel competitive, 38 (35%) participants (27 boys, 11 girls) stated that playing violent video games did not affect their mood, while 33 (30 %) participants (30 boys, 3 girls) declared feeling relaxed while playing violent video games. Also, 30 (28%) participants (19 boys, 11 girls) stated that playing violent video games made them feel aggressive, and a small percentage of participants 17 (16%) (12 boys, 5 girls) declared that playing violent video games made them feel angry.

Table 7

## Playing Violent Video Game and Mood

	Agree		Disagree		Not Sure	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
It makes me feel excited						
Boys	39	64%	13	21%	9	13%
Girls	15	31%	18	38%	15	31%
Total	54	50%	31	28%	24	22%
It makes me feel competitive						
Boys	34	56%	13	21%	14	23%
Girls	18	38%	17	35%	13	27%
Total	52	48%	30	27%	27	25%
It doesn't affect my mood						
Boys	27	44%	25	41%	9	15%
Girls	11	23%	19	40%	18	38%
Total	38	35%	44	40 %	27	25%
It makes me feel relaxed						
Boys	30	49%	22	36%	9	15%
Girls	3	4%	31	65%	14	29%
Total	33	30 %	53	49 %	23	21%

Table continues



A chi-square test of independence was performed to examine the relation between gender and participants' responses about how video game playing affected their mood. The percentage of participants who declared that playing violent video games made them excited significantly differ by gender,  $\chi^2(1, N = 109) = 9.45, p = .009$ . More boys than girls declared excitement while playing violent video games. The percentage of participants who declared that playing video games made them feel competitive also significantly differ by gender,  $\chi^2(1, N = 109) = 23.5, p = .000$ . Based on the percentages, more boys than girls declared that playing violent video games made them feel competitive. The percentage of participants who declared that playing violent video games made them feel relaxed ( $\chi^2(1, N = 109) = 9.00, p = .001$ , significantly differ by gender. Again, more boys than girls were in this category. The percentage of participants who declared that playing violent video games made them feel aggressive ( $\chi^2(1, N = 109) = 4.04, p = .111$ , angry ( $\chi^2(1, N = 109) = 4.20, p = .123$ , or did not affect their mood ( $\chi^2(1, N = 109) = 9.13, p = .110$  did not significantly differ by gender. Therefore, boys and girls significantly differed on three selected choices: excited, relaxed, and competitive. According to the results, more boys than girls chose these mood experiences while playing violent video games.

### **Beliefs about Violence in Video Games and Violence in Real Life**

To establish participants' beliefs about violence presented in video games and violence in real life, the following questions from the self-reporting questionnaire were analyzed:

1. Have you ever personally been involved in a real-life situation that may have been influenced by violent video games?

2. Have you ever heard through the media about any real-life situations that may have been influenced by violent video games?
3. Do you believe that some people can become aggressive after they play violent video games?

For these questions, participants were offered yes and no choices, and they were also provided with an open space to further describe and elaborate their answers. The results are presented in order of the questions with both quantitative and qualitative analyses performed. In order to determine the occurrence of positive or negative answers to the questions, the frequency count was used to summarize how often different scores occurred within a sample of scores. In the qualitative part of the analyses, participants' responses to open-ended questions were coded and analyzed for descriptions and themes. Coding is the process of examining the raw qualitative data that comes in the form of words, phrases, sentences, or paragraphs, and assigning codes (Gibbs, 2002; Lewins, Taylor, & Gibbs, 2005). Each segment is labeled with a code which is usually a word that suggested how the associated data segments inform the research objectives. The relationship among the codes was established, and next, they were grouped in the major themes that were summarized for each question.

1. Have you ever personally been involved in a real-life situation that may have been influenced by violent video games?

According to the frequency results, 21(19.3%) participants (15 boys and 6 girls) declared that they had been involved in real-life situations that may have been influenced by violent video games, while 88 (81%) participants (46 boys and 42 girls) stated that they had never been involved in such a situation. The percentage of participants who

declared that they had been involved in real-life situations that may have been influenced by violent video games, did not significantly differ in gender ( $\chi^2(1, N = 109) = 2.52, p = .112$ ). In this question, participants were asked to provide further explanations to their responses, and an open space for their answers was provided in the questionnaire. The responses were entered in Ethnograph, coded and analyzed for description and themes. The responses were provided by 15 (14%) of the participants (9 boys, 3 girls). Through coding and categorizing of their responses, three common themes were identified: (a) fighting, (b) imitation, and (c) using different techniques learned in the violent video games.

### **Fighting**

Four participants expressed concern that some of the fights that they witnessed in the school yard may have been influenced by the playing of violent video games. Participant 7S14 (boy; violent video game player) explained, “Whenever there is a fight on the school yard, I think that kids get more aggressive when and after playing violent games. And they think that fighting is the only way to show their mood.” Participant 3S04 (boy; violent video game player) confirmed that he had been involved in real life situations that may have been influenced by violent video games, explaining: “Yes, here in school, in the yard, and in the classroom.” Participant 1S01 (boy; nonviolent video game player) also stated that he had witnessed fights at school but had never been personally involved in a violent situation. Participant 4S13 (girl; nonviolent video game player) stated, “Some games teach kids to fight and when they seem to have a problem, they will try to fight with someone.”

Therefore, some participants believed that playing violent video games may negatively influence some children and youth. The responses given from violent and nonviolent video game players were similar in nature.

### **Imitation**

Four participants stated that they believed that some violent video game players imitate behaviours and attitudes seen in violent video games in real-life situations. Participant 4S18 (boy; violent video game player) explained, “One time I was walking at White Oaks and all the kids there were playing *GTA IV*, and they were carrying knives and threatening people for a joke.” Participant 7S16 (girl; nonviolent video game player) elaborated, “People ‘act’ a scene from a video game, and constantly talk about it,” while participant 7S20 (girl; nonviolent video game player) approached the question critically stating, “Some go out punching people because that is what characters do in video games. It is just stupid and immature.” Participant 1S03 (boy; violent-video game player), who declared playing violent video games, explained that he and his friends sometimes go to the forest and play “air soft guns based on *Call of Duty*.” Therefore, some participants believed that the characters from violent video games may have negative effects on some children and youth if imitated in real life. There was no evident difference between violent video game players and nonviolent video game players in their responses to this question.

### **Different Techniques Learned in Violent Video Games**

Some interviewed participants believed that learning certain fighting techniques and lines from the violent video games can help them resolve issues in real life. Here are some of the responses, “You could need to use a weapon in your life and you would want

to know what the better weapon is”(2S05; boy; violent video game player), or “ Well, my one friend was trying to hurt me and I used a fighting move I saw in a game” (7S18; boy; violent video game player), or “If someone is badmouthing me I may use a line from a game” (3S22; boy; violent video game player), and “Some people try to pick fights with me, but back off after I use the line from the game to insult them” (3S20; boy; violent video game player). Therefore, these four participants believed that playing violent video games have some elements and strategies that may become useful in real-life situations related to self-defense. All four participants (2S05, 7S18, 3S22, 3S20) who elaborated on this question were boys who were from violent video game playing group.

2. Have you ever heard through the media about any real-life situations that may have been influenced by violent video games?

In order to analyze the answers to this question, an analysis of frequency was performed. In the qualitative part of the analyses, participants’ responses to open-ended questions were coded and analyzed for descriptions and themes. According to the results, 44 (40.4%) (29 boys and 15 girls) responded that they heard through the media about some real-life situations that may have been influenced by violent video games with the remaining students indicating that they were unaware of any such instances. There were 65 (59.6%) participants (33 boys, 32 girls) who responded that they have never heard through the media about any real life situations that may have been influenced by violent video games. Nine participants did not respond to this question. Participants were asked to provide further explanation to their response, and the open space for their answers was provided in the questionnaire. Elaborative responses were provided by 38 (35%) of the participants.



The responses were entered in *Ethnograph* and coded and analyzed for description and themes. Through coding and categorizing of their responses, two common themes were identified: (a) the influence of violent video games on real-life aggression, and (b) imitation, and real-life simulation. Within the first theme, four participants elaborated on the news reports about the possible influence of violent video games on real-life aggression. Participant 7S16 (girl; nonviolent video game player) stated she heard that, “any crime involving shooting, and stabbing, may have been influenced by violent video games.” Participant 1S06 (boy; violent video game player) described that he heard that, “people are getting violent,” while participant 2S01 (boy; violent video game player) stated that, “two people started getting violent after playing a violent game.” Participant 4S07 (boy; nonviolent video game player) elaborated, “Yes, people have done a lot of injuries and deaths because of violent video games.” Participant 4S09 (girl; nonviolent video game player) further explained, “Once a boy in high school in America shot a lot of students because he was influenced by a violent video game.” It appeared that those four participants believed that there was a possible influence of violent video game playing on real-life violence and aggression. Two participants in this group declared themselves to be violent video game players, and two declared themselves to be nonviolent video game players. There was no evident difference in the responses between these participants.

Within the second theme, participants elaborated on imitation and simulation of violent video game scenes and characters in real life. Participant 4S12 (girl; nonviolent video game player) stated, “Teenagers wanting to be just the guys from *San Andreas*, steeling and committing other crimes that affect the society.” Another participant

provided a similar statement, “People in Toronto acted as if they were in *San Andreas* the video game and were very violent.” Participant 3S01 (boy; violent video game player). Participant 3S10 (boy; violent video game player) confirmed that he heard through the media about real-life situations that were influenced by violent video games and elaborated, “Yes, because some people think video games are like real life and will use guns because the video game’s characters do.” One participant stated, “I heard on the Internet that a group of boys after they finished playing *Grand Theft Auto*, stole an old lady’s car, drove around recruiting people for a theft gang, however, they were shortly arrested” (1S04; boy; violent video game player). Some other statements are as follows: “People think the real world is a game and start shooting people” (7S06; boy; nonviolent video game player); and “A teenager played *Grand Theft Auto* and went around shooting people and stealing cars” (7S05; girl; nonviolent video game player). Thus, it appeared that those five participants believed that there was a possibility of imitation and simulations of violent video game characters and scenes in real life. Again, no difference was shown in the responses between participants who were violent video game players and those who were nonviolent video game players.

3. Do you believe that some people can become aggressive after they play violent video games?

In order to determine the occurrence of affirmative or negative responses to this question, an analysis of frequency was performed. The results showed that 87 (79.8%) participants (52 boys, 35 girls) declared that they believe that some people can become aggressive after they play violent video games, and 22 (20.2%) participants (9 boys; 13 girls) stated that they did not believe that individuals who played violent video games

become aggressive after they play violent video games. The percentage of participants who reported believing that some people may become aggressive after playing violent video games did not significantly differ in gender ( $\chi^2(1, N = 109) = 2.32, p = .124$ ).

Therefore, the majority of the participants expressed the belief that some individuals may become aggressive after playing violent video games.

### **Video Games and Identification**

To establish participants' possible identification with their video game characters and what personality traits they admire the most in their favourite video game characters, the following questions from the self-reporting questionnaire were analyzed:

1. Who are your favourite video game characters?
2. Do you sometimes wish you were like one of your favourite video game characters?
3. Which of the following personality traits do you admire the most in your favorite video game characters?

1. Who are your favourite video game characters?

When analyzing this particular open-ended question, participants' responses were combined and entered in SPSS for further analyses. Descriptive statistics indicated that 44 (40%), (42 boys, 2 girls) participants stated Alex Mason from *Call of Duty: Black Ops* as their favourite character, 27 (25%), (26 boys, 1 girl) stated Frank Woods from *Call of Duty: Modern Warfare* as their favourite video game character, while 36 (33%), (36 boys, 0 girls) participants chose John "Soap" MacTavish from *Call of Duty: Modern Warfare*. Also, 22 (21%), (2 boys, 20 girls) participants chose Mario from *Mario Brothers Series* as their favourite character, and 15 (13.5%), (2 boys, 13 girls) chose *The Sims* characters as their preferred choice. Some other choices with a very small

percentages included Boss from *Saint Row*, Rachel Berry from *Glee*, Master Chief from *Halo*, Tank Dempsey from *Call of Duty: World At War*, and some sport players such as Sidney Crosby and Taylor Hall from *NHL* series. A chi-square test of independence was performed to examine the relation between gender and participants' choice of favourite video game characters. The percentage of participants significantly differ in gender ( $\chi^2(1, N = 109) = 44.6, p = .001$ ) for their favourite video game character choices. Based on the results, the most popular video game characters for boys were Alex Mason, Frank Woods, and John "Soap" MacTavish, the characters from *Call of Duty* series, first-person-shooter video games with violent content rated "Mature" for portraying authentic military combat with realistic scenes of violence and gore. Mario from *Mario Brothers Series* platform genre video games, and the characters from *The Sims*, strategic simulation genre video games were most popular among the girls.

## 2. Do you sometimes wish you were like one of your favourite video game characters?

In this question, participants were asked to respond to a 3-point Likert-type scale (agree, disagree, not sure). A frequency count was used to summarise how often different scores occur within a sample of scores. The results revealed that 56 (51.4%) participants (37 boys, 19 girls) declared that they would like to be like their video game characters, while 53 (48.6%), (24 boys, 29 girls) participants stated that they do not wish to be like one of the video game characters. The percentage of participants who declared that they would like to be like their favourite video game characters, significantly differ in gender ( $\chi^2(1, N = 109) = 4.77, p = .002$ ). According to the percentage, there were more boys than girls who declared that they would like to be like their video game characters.

3. Which of the following personality traits do you admire the most in your favorite video game characters?

In this question participants were asked to respond to a 3-point Likert-type scale (agree, disagree, not sure). The choices offered were: “Brave/Courageous;” “Persistent/Never gives up;” “Successful;” “Funny;” “Smart;” “Dominant;” “Aggressive;” and “Attractive.” For this question, a frequency was performed and the results were presented in Table 8. According to the results, 90 (82.6%) participants (52 boys, 38 girls) stated that they admire brave/courageous the most, 86 (78.9%) participants (51 boys, 35 girls) chose persistent/never gives up as the most admired personality trait, while 76 (69.7%) participants (45 boys, 31 girls) chose successful as the most admired personality trait. There were 68 (63.4%) participants (39 boys, 29 girls) who chose funny as the most favourable personality trait. There were 62 (56.9%) participants (36 boys, 26 girls) who chose smart as their preferred personality trait, 45 (41.3%) participants (36 boys, 9 girls) stated aggressive as their favourable personality trait, 48 (44%) participants (37 boys, 11 girls) chose dominant as their favourite trait, while 35 (32.1%) of the participants (18 boys, 17 girls) declared attractive as their favourite trait.

A chi-square test of independence was performed to examine the relation between gender and participants’ choice of favourite personality traits of their video game characters. The percentage of participants who chose personality traits of dominant ( $\chi^2(1, N = 109) = 16.0, p = .000$ ), and aggressive ( $\chi^2(1, N = 109) = 21.8, p = .000$ ), as admired personality traits of video game characters significantly differ by gender.

Table 8

## Personality Trait of Favorite Video Game Characters

	Agree		Disagree		Not Sure	
	n	%	n	%	n	%
Brave/Courageous						
Boys	52	86%	4	6%	5	8%
Girls	38	79%	1	4%	8	17%
Total	90	82%	5	5%	14	13%
Persistent/Never gives up						
Boys	51	84%	1	1%	9	15%
Girls	35	73%	3	6%	10	21%
Total	86	79 %	4	4%	19	17 %
Successful						
Boys	45	66%	6	10%	10	17%
Girls	31	65%	5	10%	12	25%
Total	76	70 %	11	10%	22	20 %
Funny						
Boys	39	64%	15	25%	7	11%
Girls	29	60%	8	17%	11	23%
Total	68	62 %	23	21%	18	17%

Table continues

	Agree		Disagree		Not Sure	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Smart</b>						
Boys	36	59%	13	21%	12	20%
Girls	26	54%	5	10%	17	36%
Total	62	57%	18	17%	29	27%
<b>Dominant</b>						
Boys	37	60%	12	20%	12	20%
Girls	11	23%	15	31%	22	46%
Total	48	44%	27	25%	34	31%
<b>Aggressive</b>						
Boys	36	59%	9	15%	16	26%
Girls	9	19%	24	50%	15	31%
Total	45	41%	33	31%	31	28%
<b>Attractive</b>						
Boys	18	29%	30	49%	13	22%
Girls	17	35%	12	25%	19	40%
Total	35	32%	42	39%	32	29%

The percentage of participants who chose personality traits: smart ( $\chi^2(1, N = 109) = 4.54, p = .100$ ), successful ( $\chi^2(1, N = 109) = 1.32, p = .059$ ), attractive ( $\chi^2(1, N = 109) = 7.42, p = .016$ ), funny ( $\chi^2(1, N = 109) = 2.98, p = .125$ ), brave ( $\chi^2(1, N = 109) = 3.63, p = .164$ ), and persistent ( $\chi^2(1, N = 109) = 2.51, p = .128$ ) as admired personality traits of video game characters did not significantly differ by gender. Therefore, positive characteristic traits, such as brave/courageous, persistent/never gives up, successful, funny, and smart, were the most favourable personality traits among participants across gender. The differences based on gender were evident in personality trait choices for dominant (60 % boys, 23% girls) and aggressive (59% boys, 19% girls) and those were predominantly boys' choices.

### **Sociomoral Reasoning and Attitudes Towards Violence**

To establish levels of sociomoral reasoning and the attitudes toward real violence for all participants, two tests were employed: The Sociomoral Reflection Measure-Short Form (SRM-SF; Gibbs et al., 1992; Appendix D), and The Attitudes Towards Real Violence (ATV; Funk et al., 1999; Appendix E). The Sociomoral Reflection Measure-Short Form (Gibbs et al., 1992) was used to measure sociomoral reasoning concerning moral values that are representative of different moral domains (e.g., life, law, affiliation, contract, and truth). The SRM-SF uses 11 brief, lead-in statements (e.g., "Let's say a friend of yours needs help and may even die, and you're the only person who can save him or her"; or, "Think about when you've made a promise to a friend of yours"). The lead-in statements are followed by evaluation questions; for example, "How important is it for a person (without losing his or her own life) to save the life of a friend? Circle one:



very important/important/not important.” The participants are also asked to elaborate on their statements and the elaborative answers were used for coding and the analyses.

Responses to the SRM-SF questions were scored by consulting the appropriate chapter in the reference manual. Questions one through four address contract and truth values and are scored using the criteria provided in chapter four (Contract and Truth). Questions five and six pertain to chapter five (Affiliation), questions seven and eight pertain to chapter six (Life), questions nine and 10 pertain to chapter seven (Property and Law), and question 11 pertains to chapter eight (Legal Justice). The basic idea of SRM-SF scoring is to assess the developmental level of questionnaire responses in accordance with the criteria in the reference manual. All 11 items were scored first, the total of all scores were calculated next, and the primary score in the SRMS-SF assessment represents the Sociomoral reflection maturity level based on the mean of the all items scored. The levels of sociomoral maturity range from The Immaturity level which represents Stage one (Unilateral and Physical) and Stage two (Exchanging and Instrumental), to The Maturity level which represents Stage three (Mutual and Prosocial) and Stage four (Systematic and Standard).

The results are based on the scores of 98 participants, age mean  $M=13.1$ , 11 (10%) participants were excluded from the sample because they did not complete the test. According to the results, the mean score was  $M=2.41$  and  $SD= .53$ . There were 54 (55%) participants who scored at Stage 2, 42 (44%) participants scored at Stage 3, and 2 (2%) participants scored at the Stage 4 of sociomoral maturity. Therefore, according to Gibbs et al. (1992), most of the participants scored between superficial moral judgment, which is more characteristic for children younger than 12, and mature or profound moral

judgment, which is characteristic for adolescents and adults. A chi-square test of independence was performed to examine the relation between gender and scores on SRMS. The results revealed that there was no significant difference ( $\chi^2(1, N = 98) = 10.1, p = .18$ ) by gender on SRMS scores.

The Attitudes Towards Real Violence (ATV), a 15-item scale developed by Funk et al. (1999) was used to measure participants' attitudes towards real violence. Items reflecting reactive violence are related to an individual's response to an immediate threat such as "If a person hits you, you should hit them back." The culture of violence reflects attitudes that would be expected to be resistant to change such as "It's okay to do whatever it takes to protect myself." The response format follows a 3-point Likert scale. The response format was coded as: agree, disagree, and not sure. Disagree responses were given a score of three. Agree responses were given a score of one. Neutral responses were given a score of two. The scale ranges from 15-45, with 45 being the highest score (each item ranges from a score of one to three). The scores greater than one standard deviation are considered to be a high score (ATV scores greater than 27.90). This means that the score higher than 27.90 predict proviolent attitudes in real life.

The analysis is based on the test results of 107 participants; two participants did not complete the test and were excluded from the sample. The results revealed that the mean of scores was  $M=22.72$  ( $SD=5.18$ ). The scores greater than one standard deviation were considered to be a high score (ATV scores greater than 27.90) predicting higher proviolence attitudes in real life. This means that participants with the scores higher than 27.90 were considered to demonstrate proviolent attitudes in real life. There were 89/107 (83%) participants who did not obtain scores higher than 27.9, thus, did not demonstrate

proviolent attitudes in real life, and 18/107 (17%) participants scored higher than 27.9, predicting high proviolent attitudes in real life. In the group who scored higher than the threshold were 16 boys and two girls. Those 16 boys were from the violent video game playing group. Therefore, based on the results on ATV test, the majority of participants did not demonstrate tendency to proviolence attitudes in real life. A chi-square test of independence was performed to examine the relation between gender and scores on ATV. The results revealed that there was no significant difference ( $\chi^2(1, N = 107) = 32.8, p = .063$ ) by gender on ATV scores. Therefore, boys and girls did not differ significantly on ATV test scores.

### **Violent Video Game Playing and Moral Reasoning**

In order to determine the association between the amounts of time participants play violent video games and their levels of socimoral maturity, an analysis of bivariate correlation was performed. There were 48 participants identified as violent video game players. This analysis is based on the test results of 45 participants, 3 participants did not complete the test and were excluded from the sample. In order to determine the association between the amounts of time playing violent video games and the scores on SRMS test for the violent video game playing group, an analysis of bivariate correlation was performed. Analysis of bivariate correlation allowed the researcher to investigate to what extent two (or more) variables co-vary (Creswell, 2003; 2008). In the present study, a bivariate correlation procedure was used in relating two scores which were scores on The Sociomoral Reflection Measure–Short Form (SRM–SF; Gibbs et al., 1992), and scores on participants' video game playing patterns and habits (amount of time playing violent video games) from self-reporting questionnaire were used to determine the

relationship between levels of participants' moral reasoning and the amount of time they spent playing violent video games. The results are as shown in Table 9.

The Pearson's  $r$  for the correlation between the amount of time playing violent video games and the scores on SRMS is  $r = -.324$  showing that there is a strong, negative correlation between two variables. The significant (2 tail) value  $p=.04$  demonstrated that the correlation between amount of time playing violent video games and the scores on SRMS was statistically significant. That meant that increase or decrease in the amount of time playing violent video games significantly related to higher or lower scores on SRMS test. An increase of the amount of violent game playing was associated with a decrease in SRMS score. In order to further explain this finding, an independent samples T-test was performed to establish if the participants in the violent video playing group significantly differ on SRMS scores by the hours of play. The amount of time playing violent video games in the violent video game playing group was based on three categories: one hour a day, two hours a day, and three or more hours a day. The mean on SRMS scores for participants who played violent video games for one hour was  $M= 2.85$ ; the mean on SRMS scores for participants who played violent video games for two hours was  $M= 2.76$ ; the mean on SRMS scores for participants who played violent video games for three or more hours was  $M= 2.30$ . According to the results, there was significant difference  $t(45)=2.09$ ,  $p=.021$  ( $p<.05$ ) between participants who played violent video games for one hour a day and participants who played violent video games for three or more hours a day on their SRMS scores.

Table 9

Correlations Between Amount of Time Playing Violent Video Games and SRMS

		Amount of violent game play per day	SRMS
SRMS	Pearson Correlation	1	-.324*
	Sig. (2-tailed)		.04
Amount of violent game play per day	Pearson Correlation	-.324*	1
	Sig. (2-tailed)	.04	

\*. Correlation is significant at the 0.05 level (2-tailed).

There was no significant difference on SRMS scores between participants who played violent video games for one hour a day and those who played for two hours a day  $t(45)= 1.19$ ,  $p=.240$ , and for participants who play violent video games for two hours a day and for three hours a day  $t(45)=1.20$ ,  $p=.231$ . Therefore, participants who played violent video games for three or more hours significantly differ on SRMS scores from participants who played violent video games for one hour a day.

### **Violent Video Game Playing and Attitudes Towards Violence**

In order to determine the association between the amounts of time participants play violent video games and their attitudes toward real violence, an analysis of bivariate correlation was performed. This analysis was based on The Attitude Towards Violence Scale-Adolescent Version test results of 48 participants ( $N=48$ ) from violent video game playing group. A bivariate correlation procedure was performed in relating the scores on The Attitude Towards Violence Scale-Adolescent Version (ATV; Funk et al., 1999) and the amount of time participants in the violent video game playing group reported playing violent video games. The results are shown in Table 10. The Pearson's  $r$  for the correlation between the amount of time playing violent video games and the scores on ATV is  $r = .155$  demonstrated that there was no correlation between those two variables. The significant (2 tail) value  $p=.303$  showed that the correlation between the two variables was not statistically significant. That means that increase or decrease in amount of time playing violent video games did not significantly relate higher or lower scores on the ATV test.

Table 10

Correlations Between Amount of Time Playing Violent Video Games and ATV

		Amount of violent game play per day	
Amount of violent game play per day	Pearson Correlation	1	.155
	Sig. (2-tailed)		.303
ATV	Pearson Correlation	.155	1
	Sig. (2-tailed)	.303	

\*. Correlation is significant at the 0.05 level (2-tailed).

## **Violent and Nonviolent Video Game Playing Groups: Sociomoral Maturity and Attitudes Towards Violence**

In determining the difference between the means of scores for violent and nonviolent video game playing groups obtained on SRMS and ATV tests, a statistical procedure of the independent samples T-test was performed. The independent samples T-test is an analysis most commonly used to compare the actual difference between two means in relation to the variation in the data (Creswell, 2003). The independent samples T-test analysis in present study was used to compare the means of two groups, violent video game playing group, and nonviolent video game playing group on two test scores: scores on SRMS and ATV. In order to determine the interaction between two dependent variables: SRMS scores and ATV scores, an analysis of Binary Logistic Regression was performed. Binary Logistic Regression is a statistical analysis used to determine whether independent variable has a unique predictive relationship to dependent variable (Creswell, 2003).

The analysis is based on the test results of 96 participants ( $N=96$ ), 13 participants did not complete the tests and were excluded from the sample. There were 45 participants in violent video game playing group, and 51 participants in nonviolent video gaming group. The statistics for SRMS test for violent video gaming group ( $M=2.62$ ,  $SD=1.3$ ;  $N=45$ ), and for nonviolent video gaming group was ( $M= 2.82$ ,  $SD=.1.3$ ,  $N=51$ ). The statistics for ATV test for violent video game playing group was ( $M= 25.16$ ,  $SD = 6.4$ ,  $N= 45$ ), and for nonviolent video gaming group was ( $M= 21.55$ ,  $SD=3.7$ ,  $N=51$ ). The results for independent samples T-test are presented in Table 11.



Table 11

T-test: SRMS and ATV for Violent Video Game Players and Nonviolent video Game Players

	N	Mean	SD	t	Sig.
SRMS					
Nonviolent Video Game Players	51	2.62	1.28	1.56	.12
Violent Video Game	45	2.82	1.30		
Players					
ATV					
Nonviolent Video Game players	51	21.5	3.67	3.40	.001
Violent Video Game	45	25.1	6.39		
Players					

According to the results, there was no significant difference  $t(96) = 1.56$ ,  $p = .12$  ( $p < .005$ ) between violent video game playing and nonviolent video game playing group on SRMS scores. Therefore, violent video game playing group and nonviolent video game playing group did not show significant difference in their levels of sociomoral maturity. An independent samples T-test for violent video game playing group and nonviolent game playing group for ATV scores revealed statistically significant difference  $t(96) = 3.40$ ,  $p = .001$ , ( $p < .005$ ). The results demonstrated that participants in violent video game playing group scored higher on the ATV tests than participants from nonviolent video game playing group, suggesting that playing violent video games was a significant predictor of proviolence attitudes in real life. The general scores obtained on ATV test that are greater than one standard deviation were considered to be a high score, meaning that ATV scores greater than 27.9 predict proviolence attitudes. However, the mean on ATV test for violent video gaming group  $M = 25.16$  demonstrated that most participants in this group did not obtain scores higher than 27.9. Although the results of present analysis showed that participants in violent video game playing group scored higher on the ATV scale than nonviolent video game playing group, the higher scores did not necessarily indicate proviolent attitudes in real life.

In order to determine the interaction between two dependent variables, SRMS scores and ATV scores, an analysis of Binary Logistic Regression was performed. Two dependent variables (SRMS scores and ATV scores) were used as predictors of violent video game playing in the first analysis, and the second analysis was used to measure the interaction between two dependent variables. The results of first analysis revealed that there was a statistically significant difference between the violent and nonviolent video

game players on the ATV test scores ( $\chi^2(2) = 9.417, p = .009$ , Nagelkerke  $R^2 = .125$ ). It demonstrated that ATV scores (Wald (1) = 6.404,  $p = .011$ ) significantly predicted whether or not participants were violent video game players. The results for second dependent variable SRMS scores (Wald (1) = 1.623,  $p = .203$ ) did not significantly predict whether or not participants were violent video game players. The results are presented in Table 12. In second analysis the interaction between two depended variables (SRMS and ATV scores) was measured, and the results revealed that the interaction did not add to the model ( $\chi^2$  change (1) = .478,  $p = .489$ ). Therefore, the interaction of the two dependent variables, SRMS and ATV scores, was not statistically significant. The results are presented in Table 13.

Table 12

## SRMS and ATV Predictors of Violent Video Game Playing

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		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	SRMS	-.227	.178	1.623	1	.203	.797
	ATV	.117	.046	6.404	1	.011	1.124
	Constant	-1.619	1.382	1.372	1	.242	.198

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a. Variable(s) entered on step 1: srms, atv.

Table 13

SRMS and ATV Interaction

		Chi-square	df	Sig.
Step 1	Step	.478	1	.489
Block		.478	1	.489
Model		9.895	3	.019

## Interviews

In this section, the results from the content analysis of a follow-up, unstructured, open-ended interview were presented. After the completion of self-reporting questionnaires, SRMS test, and ATV tests, the interviews were conducted with 10 participants. Participants were selected based on their self-reporting video game playing patterns and habits. Five participants were randomly selected from the violent video game playing group. Violent video game playing group included participants who declared playing video games for one to three hours every day, selected violent video games as the games they played often, indicated violent video games as their favourite video games to play, declared playing violent video games, and enjoyed playing violent video games. Another five participants were randomly chosen from the nonviolent video game playing group. Nonviolent video game playing group included participants who declared playing nonviolent video games for less than one hour to three hours every day, every other day, few times per week, few times per month, or on the weekends, selected nonviolent games as the games they played often, and chose nonviolent games as their favourite games to play. The intention was to provide in-depth information about the interviewees' video gaming attitudes, patterns, and habits, and their attitudes toward violence in real life and in video games. Each interview lasted approximately 30 minutes and was conducted by the researcher.

The interview took place in one empty classroom, and was done in a one-on-one fashion. The teachers from participating classrooms were given a list with the students' names and they sent them to meet with the researcher individually at a determined time for the interviews. All interviews were recorded, transcribed, and entered in *Ethnograph*

(*Ethnograph v5.0 Software for Text Based Qualitative Analyses*) software programs for analysis. The interview data for each participant were analyzed carefully for description and themes. Coding is the process of examining the raw qualitative data which comes in the form of words, phrases, sentences, or paragraphs, and assigning codes (Gibbs, 2003). The relationship between the codes was established, and next they were grouped in the major themes that were summarized for each question. Through coding and categorizing, as described by Creswell (2003), three categorizes were identified. These included: (a) video game patterns, habits, and attitudes; (b) violence in video games and violence in real life; and (d) identification/imitation.

### **Video Game Patterns, Habits, and Attitudes**

In order to obtain a sense of the issues related to participants' video gaming patterns, habits, and attitudes, participants were asked to elaborate on why they like playing video games, and what elements from video games they enjoy the most. Through analysis of participants' responses, it emerged that they liked playing video games because video games were fun, entertaining, challenging, and competitive, and also they were likely to play them when they were bored. In addition, they declared that playing video games helped them in relieving stress. One participant (7S03 boy, violent video game player) explained, "I like playing violent video game because it is exciting and challenging, and I enjoy winning." Participant 7S17 (boy, violent video game player) described his experience with video game playing: "It is fun, I enjoy the competing with others, and I enjoy the challenge of completing a mission." One participant explained: "I play rarely, maybe 3 hours per month, and I play when there is nothing else to do, when I am not playing sports, but I play sports a lot. No time for video games" (Participant 7S06,

boy, nonviolent video game player). Another participant further elaborated: “I am on facebook a lot, I play games there. It is entreating, it is fun, and it is really something to do when I am board. And I get bored a lot lately” (Participant7S01, girl, nonviolent video game player).

In the group of participants who do not play video games a lot, another theme emerged when they were asked about their video game playing habits. They play video games only when their siblings, mostly older brothers, invited them to play. Here are some responses: “I like playing video games with my brother, he plays a lot, and sometimes he teaches me different strategies in the games. I like playing video games just to try to beat him” (Participant 7S05, girl, nonviolent video game player). Another participant explained: “I play video games only when my brother invites me to play with him. It is fun” (Participant 7S04, girl, nonviolent video game player). Three participants, who reported playing violent video games for three or more hours during the day, provided a different perspective when they elaborated on why they like playing violent video games. They expressed enjoying the killing in the games and liked to be involved in the virtual acts of killing. “You just get sucked into different world, you feel powerful and you don’t think about any problems you have. It feels good when you kill other people, but it sucks when you get killed” (Participant 7S03; boy, violent video game player). Another participant elaborated: “I like going around and killing people, and getting reward points in order to get on the killing strike” (Participant 7S22; boy, violent video game player). A third participant described enjoying killing in violent video games but he stressed that it also helps him relieve the stress and vent his anger. Participant 7S26 (boy, violent video game player) shared: “I like collecting points, I do enjoy



shooting people, but I don't think it is good to shoot people in real life. It is a good stress reliever. I feel relieved and less angry after playing." Two other participants also stated that playing video games helps them relax and vent their anger. Participant 7S17(boy, violent video game player) was more specific in his response stating that playing violent video games helps him vent his anger: "I find *Call of Duty* helps me vent my anger, when I am angry with my brother."

Participants were asked to elaborate on their video game preferences. All of them stressed that at least once in their life they tried playing violent video games, but the reasons for playing these games differ. Five participants who played violent video games for one hour to three hours a day stated *Call of Duty: Black Ops* and *Call of Duty: Modern Warfare* as their preferred choices and stated the following reasons for their preferences: sense of accomplishment, completing missions, collecting points/rewards, action, competition, being in control as a first-person shooter, using guns, and shooting. Participant 7S26 (boy, violent video game player) explained: "I like collecting points, I feel very successful at the end when I win a battle." Another participant stated: "I like using guns and being in control, and as a first-person shooter I am" (Participant 7S03; boy, violent video game player). Participants who do not play video games mostly preferred games with nonviolent content such as: *The Sims*, *Super Mario Brothers*, and *Just Dance*. The reasons for their preferences were: fun, adventure, and creativity. Here are a few examples: "It is fun to complete missions on line with my friends" (Participant 7S05 girl, nonviolent video game player); "I play Mario, it is fun, it gives you sense of adventure, I also play The Sims, it gives me an opportunity to be creative, I can create my own space, my pets, my garden" (Participant 7S16, girl, nonviolent video game player).

## **Violence in Video Games and Violence in Real Life**

In order to explore the issues related to participants' perception on violence in violent video games and the violence in real life, participants were asked to elaborate on how they perceived violence in video games and violence and aggression in a real-life situation. They were also asked to expand on the possible effects of violent video game playing on the video game players. Although all participants declared that they had played violent video games at least once in their lives, the perspective on violence presented in violent video games differed between those who played video games often and those who did not play them at all. Five participants, who declared playing violent video games for one or more hours a day, stated that the violence in the video games should not be taken seriously, stressing that it is just "a game" and it is about gaining points and achieving another level of the game. Participant 7S03 (boy, violent video game player) explained, "The main point of these games is if you shoot more people, you gain more points. It is really about points and rewards, not about violence. It is just a game." Another participant said:

My mom did not let me play violent video games and she kept saying 'You are killing people', but it is not about killing, you don't want to shoot the person, you are just collecting points. When I play I don't think now I will shoot him in the head and blood will go all over. (Participant 7S17, boy, violent video game player)

The group of participants who do not play violent video games stated that they do not play violent video games because of the scenes with blood and gore, and shooting. One participant responded: "I enjoy playing *The Sims* because it does not involve killing other

people. I don't like playing violent video games, because there is a lot of blood and gore" (Participant 7S05; girl, nonviolent video game player). Another participant (7S16, girl, nonviolent video game player) provided a similar explanation:

R: Do you play violent video games?

P: No, not really, you can do more interesting and productive stuff in your life than playing violent video games.

R. Have you ever tried playing violent video games?

P. Yes, but I did not like it, too much shooting and blood, it made me sick.

To further explore participants' perceptions on the possible effects of violent video game playing on violent video game players after the play, participants were asked to elaborate on their beliefs about these issues. The difference in perspective between those who play violent video games and those who do not again was evident. The participants who played violent video games generally stated that playing violent video games does not affect them at all because they know that "it is just a game." When asked to elaborate about the possible effects on violent video game players other than them, their perception somewhat changed. They explained that there is a possibility that playing violent video games can have some negative effects on the other players' real-life attitudes if they were too young to differentiate between virtual world and the fantasy, and if they already showed aggressive tendencies in real life. Here is an example.

R: How does it make you feel when you shoot people in video games?

P. I just try to win, and gain points.

R: Do you believe that shooting people in video games can have some negative effects on some violent video game players?

P: I think that it can have some negative impact on younger players, I do not believe that young kids should play them because they do not know what is real and what is not.

R: Why do you think it may have negative impact on younger players but not on older ones?

P: We know what is happening, nine-year-olds really do not understand and they can use that violence to show their friends, like this is cool. (Participant 7S18, boy, violent video game player)

In the group of participants who rarely play video games, the perception of possible effects of violent video games on those who play differ from the group of violent game players. They stated that there is potential danger in playing violent video games for long hours and that it can negatively affect those who play. Here is an example:

R: Do you believe that some people or children can become aggressive after long hours of playing?

P: Yes. Some people can become aggressive. I know one person who played violent video games for hours, and after he got a temper tantrum, and was throwing things around, finally cops had to come to intervene.

R: Do you have friends who play violent video games? Do they act differently after playing?

P: Yes, and some of them sometimes are aggressive.

R: Do you believe that it has something to do with the violent video game playing?

P: Yes, it is possible. (Participant 7S06, boy, nonviolent video game player)

Another participant (7S04, girl, nonviolent video game player) further elaborated: “Yes, I believe that some kids may become violent after playing, there is too much violence in

these games you know, and if they played it for hours, they may want to try it on in real life.” Participant 7S05 (girl, nonviolent video game player) also believed that some people do become aggressive after playing violent video games explaining: “For some people, they really do not know how to control their anger, and when they play violent video games, that can motivate them to become more aggressive.”

### **Identification/Imitation**

In order to obtain participants’ perceptions about possible identification with video game characters and the imitation of the events presented in video games in real life, interviewed participants were asked to identify their favourite video game characters, and to elaborate on what personality traits they admire in their favourite character, and whether they sometimes wanted to be like their video game characters. They were also asked about a possibility of imitation of some scenes/events from video games in real life. In the violent video gaming group, participants chose two characters: Alex Mason from *Call of Duty: Black Ops*, and Frank Woods from *Call of Duty: Modern Warfare*. When asked to describe personality traits of their favourite characters, 4 participants chose brave, persistent, successful, and courageous. Here is an example.

R: Who is your favourite video game character?

P: Alex Mason.

R: Why?

P: Because he is brave, courageous, and he always wins. (Participant 7S18, boy, violent video game player)

Another participant 7S17 (boy, violent video game player) elaborated, “My favourite character is Frank Woods, he is a just so cool and keeps everything under control. He

succeeds in every mission.” When asked if they would like to be like them, all participants in violent video gaming group responded positively. One participant chose aggressive as the personality trait that he admired the most. He explained, “I like Frank Woods, he is good at shooting, he is aggressive, and brave. That is why I admire him” (Participant 7S17, boy, violent video game player). When asked if he would sometimes want to be like his favourite video game character, the same participant responded, “Yes, because he is always involved in dangerous situations. He is very cool.”

For the participants who are in the group of nonviolent players, the favourite character was Mario because he is “funny and adventurous.” All of them stated that they would like to be like their video game favourite character because they liked to be involved in an adventure. Participants were also asked to elaborate on the potential imitation of violent video game scenes in real life. They all agreed that there is a possibility that some players might try to imitate some scenes from violent video games but they all pointed out that it applies only to those who already possess aggressive traits in real life. One participant explained, “I know some people, some freaks. They played *Warcraft* and afterwards, they started imitating scenes from the game, pointing guns, yelling and smashing things around them. But, they are always kind of mad and aggressive” (Participant 7S03, boy, violent video game player). Another participant stated, “Some people may imitate violence in real life, but those are people who do not know how to control their anger in real life, that is how they express themselves” (Participant 7S04; girl, nonviolent video game player).

According to participants’ responses, there was no danger in imitation of violence presented in video games for violent video game players who were not violent or

aggressive in real life. When asked if we should be concerned about possible imitation of video game violence in real life, Participant 7S16 (girl, nonviolent video game player) concluded, “No, I would not be concerned, as long as they know that it is just a game. It would be stupid to go around and use bad language or shoot other people. They do not want to be known as aggressive persons.”

In conclusion, the interview data analysis identified three different categorizes based on participants’ responses: video game playing patterns and habits, violence in video games and violence in real life, and identification with video game characters. In the first category, the interviewed participants were asked about their video game patterns, habits, and attitudes. The majority of interviewed participants stated that they play video games because they are fun, entertaining, challenging, competitive, and they also play when they were bored. Interviewed participants from the violent video game playing group also stated that playing violent video games helps them in relieving stress and venting their anger. Three participants from the violent video game playing group expressed that they enjoyed the killing in the games and liked to be involved in the virtual acts of killing. Participants from the nonviolent video gaming group declared that they played video games mostly when they were bored and when their siblings invited them to play. Five participants who played violent video games stated violent video games as their preferred choices (*Call of Duty* series), while participants who do not play video games preferred games with nonviolent content (*The Sims*, *Super Mario Brothers* series).

Although all participants declared that they had played violent video games at least once in their lives, the perspective on violence presented in violent video games differed between those who played video games often and those who play them rarely or

not at all. Five participants from the violent video game playing group stated that the violence in the video games should not be taken seriously; stressing that it is just “a game” and it is about gaining points and achieving another level of the game. The participants from the nonviolent video game playing group expressed dislike for violent video games because of the scenes of blood, gore, and shooting.

In the second category participants elaborated on violence presented in video games and violence in real life. The perspective of violent game players and those who did not play violent video games differed on this issue. The interviewed participants from the violent video game playing group stated that playing violent video games did not affect their behaviour because again “it is just a game”, but expressed concern about possible negative effects on younger, immature players who do not know how to differentiate between the real and fantasy worlds. The participants from the nonviolent video game playing group believed that there is potential danger in playing violent video games for long hours and that it could negatively affect those who play.

In the third category participants elaborated on identification and imitation with video game characters. When asked about their favourite video game characters and what personality traits they admired in these characters, all participants chose their favourite video game characters from their favourite video games. The participants from the violent video game playing group chose Alex Mason and Frank Woods, both from the *Call of Duty* series. For the admired personality traits of their favourite characters, they chose “brave, persistent, successful, and courageous”. The interviewed participants from the nonviolent video game playing group chose Mario from *Mario Brother's* series, explaining that they would like to be like him because he is “funny and adventurous”. All



interviewed participants agreed that there is a possibility that some players might try to imitate some scenes from violent video games but they all pointed out that it applies only to those who already possess aggressive traits in real life.

### **Field Notes**

Field notes are a method of qualitative research created when observing a culture, setting, or social situation by the researcher to remember and record the behaviours, activities, events, and other features of the setting being observed (Mulhall, 2002). While in the field, I jotted down a few words or short sentences that helped me recall the important observations. I set the time right after coming home from the field to write notes and to do some preliminary analysis in order to identify emerging themes. Field notes are meant to be read by the researcher to produce meaning and understanding (Creswell, 2003).

The data collection took place in seven elementary schools from a public board in Ontario. Three schools are located in what is considered a rural area, and four schools are located in the urban area. After the Board of Education granted the ethics approval, I contacted the school principals, introduced myself and my research, and inquired about the best time to come to school and do the data collection. All seven principals were very supportive of my research and encouraged me to contact their grade 8 teachers for further assistance. I emailed the teachers describing the purpose of my research, trying to arrange a time to come to the school, to introduce my research, and to deliver the consent letters for parents to sign. The response was immediate and enthusiastic. All teachers responded to my email within the day and suggested the best time for me to come. My experience upon arriving was very similar in all seven schools. Upon entering in each school I felt

welcomed. In each school I was greeted by the principals, who expressed an interest in my study, stating how important and timely my research topic was, and they invited me to come to their offices after data collection to further discuss my research.

The classroom teachers were also very supportive and they all warmly welcomed me to their classrooms. On my first visit, I introduced myself to students and described the purpose of my research. I also explained the purpose of the consent forms and when they should be returned to their teachers. Students appeared very interested in my study and they all agreed to take the consent forms with them for signature. After delivering the consent forms, I talked to teachers about the process of data collection and asked them to inform me when the consent forms were brought back. We arranged for them to send me an email when the consent forms were back and to determine the date for my next visit. Within 2 weeks after I delivered the consent forms, I received emails from the teachers informing me that most of the consents forms were signed and returned and they provided me with the possible dates for my next visit. Again, I was pleasantly surprised with the prompt responses from all of them considering their very busy day-to-day schedules. My observations on the days of data collection are presented below.

January 17, 2011

This public school (grades JK-8) is located in a small, rural area in Ontario. It has a very friendly environment, lots of students' work displayed in the hallway, very clean, appears well organized. As previously arranged, I arrived at this school at 9:00 a.m., and the school principal was waiting for me at the reception. He was a very pleasant man who warmly welcomed me to his school. We talked about the arrangements for my data collection and he stated that they were all willing to help me collecting the data without

any interruptions. He was also very eager to talk to me about my research, and invited me to come to his office afterwards. The grade 8 teacher was also very pleasant and appeared very well organized. As soon as I arrived, she handed me the signed consent forms and directed me to the library where students who consented to participate were waiting for me. There were 12 students patiently waiting, and after I gave them the directions how to fill out the questionnaires, they diligently started to work on their questionnaires. It took them approximately 30 minutes before they finished. No questions were asked, and none of them withdrew. Upon finishing, they quietly went back to their classroom. The school principal was in his office waiting for me to further discuss my research. He expressed his utmost support to my research stating how important and timely it is. He pointed out that he was aware how popular video games are among children and youth, but he especially expressed concern for younger children who played violent video games. He said:

I cannot believe that some of my students in grade 1 play violent video games considering that most of those games are rated 18 and up. I am really concerned with the fact that some parents do not know or do not care what their children do after school. He also talked about the potential negative effects of violent video games on children's cognitive and moral development.

He also stated:

Some teachers are very concerned about the violence that children are exposed to in violent video games, some of them noted that boys who played violent video games for prolonged hours are susceptible to violent behaviour in school and show less empathy toward others.

I asked him if they used video games in school, stating many benefits of educational video games on students' overall development. He responded that it is used only as a reward for good behaviour, not so much as an educational tool. We discussed present research about violent video games, and I explained that although some research confirmed some negative effects of violent video games, there is a lot to be taken into consideration, and more research needs to be done (mine included) before we can come to the conclusion that playing violent video games may cause aggressive behaviours in real life. He said that he was looking forward to my research results and invited me to come and share it with his staff, students, and parents. He also said that my research study can be easily incorporated in critical media literacy.

January 18, 2011

Today I visited two schools, both urban schools not so far from each other. Both schools are well maintained with very friendly staff and students. Both teachers were in their early 30s and appeared to have a very good relationship with their students. The principals in both schools came to meet with me and were very supportive of my research. The data collection in both schools went in a similar manner. Students who brought back their consent forms signed were called to join me in an empty classroom and the data collection went well with both groups. I was again very impressed with the students' diligence while they were filling out the questionnaires. It appeared to me that they really wanted to do it well. I had a very interesting conversation with one of the teachers. After I escorted students back to classroom, she asked me if she could talk to me. She expressed a great interest in my study (which is always good to hear) and she said that there were two students in her class who were very much into playing violent

video games and that she was concerned about their sometimes aggressive behaviour.

She said:

Just yesterday, I was outside during the break, when an incident happened. Those two boys were goofing around, and being silly when all of a sudden they started pushing another boy and yelling ‘Move away, I am Alex Mason and I will kill you with my secret weapon.’ I intervened right away, and later on I talked to them and found out that they were imitating the moves from the video game Call of Duty: Black Ops. I mean, what kind of game is it?

I talked to her about present research on violent video games, and about possible effects on children’s behaviour and tried to reassure her that it is probably just a stage of adolescence when they are trying on new identities, but that we as educators certainly should know more about our students’ outside of the school involvement, especially about video game playing patterns and habits, since lately it is one of the most popular activities among children. She said to me on my way out: “I am looking forward to your results, please come again.”

January 24, 2011

Today I collected data in two rural schools. Again, I was impressed with the schools’ organization, discipline, but most of all with how welcomed they made me feel. For a novice researcher, the process of data collection can be very frightening and stressful. I couldn’t say that I wasn’t worried about the process. I was questioning my abilities as a researcher. I was feeling as an intruder who disrupts everyday school routines. How will students see me? Will they collaborate? And, teachers, principals??? But, the way I was welcomed in all schools and the support I received from the principals

and the teachers reassured me and gave me confidence in my research ability and my research in general. Today's data collection went well.

January 25, 2011

Today was my last day of quantitative data collection. I visited two schools and my experience was similar to previous days. Everything went smoothly, teachers were supportive and students were keen in filling out the questionnaires. One female teacher talked to me about a critical media literacy program in her school and asked if I could provide her with some literature on video games. She expressed an interest in learning more about video games in general stating that she would like "to get on their side" and find out why children are so much into video games, especially boys. It made me feel good to realize that I can be of help and become a small part of her literacy class. When I picked up the last questionnaire I suddenly felt so relieved that everything so far went well, and at the same time I felt excited about the next step of my research. The analyses! I finally have my data to work with, I cannot wait! It was snowing all day and the weather was awful. I was driving home thinking about my research, when suddenly the road in front of me disappeared. I ended up in the half a meter ditch, upside down, unable to move. While I was waiting for help to come, cold and terrified, I kept telling myself "This better be worth it."

### **Conclusion: Field Notes**

In conclusion, my experience in the field was a very positive one. I was warmly welcomed in each school, and all school principals and the teachers expressed an interest in my study. The students were very keen and diligent in their participation. The main theme derived from the field notes was an expressed need from educators to learn more

about video games in general, and violent video games specifically. Most educators voiced concern about the possible negative effects of violence presented in violent video games on children and youth, and articulated the importance of media literacy programs in their schools with the special attention given to violent video games. As one principal pointed out: “We need to catch-up with the new technology and the new media if we want to be able to understand our students. The more we as educators are informed, the easier it will be for us to help students in deconstructing the real meanings behind the media messages”. (Field Notes, January 18, 2011)

### **Summary of the Chapter**

This chapter presented the results based on the analyses of eight research questions. The results revealed that most of the participants reported playing video games, more than half of them reporting playing video games every day, with some of them playing every day for more than 1 hour. More than half of the participants declared playing violent video games, and first-person shooter video game genre was the most popular among them. The most popular video game characters were characters from first-person-shooter video games with the violent content rated "Mature" which portray authentic military combat with realistic scenes of violence and gore. Most of the participants declared playing video games for fun, excitement, and competition, and when they were bored. Some participants believed that playing violent video games may have a negative influence in real-life situations on some children and youth, and that the characters from violent video games may have possible negative effects on some children and youth if imitated in real life. Almost half of the participants declared that they would like to be like their video game characters, and the most favourable personality traits

from main video game characters were positive characteristic traits such as brave/courageous, persistent/never gives up, successful, funny, and smart.

Boys and girls significantly differed in the amount of playing video games during the day, the reasons for playing video games, their favourite video game choices, and their favourite video game character choices. Boys and girls also significantly differed on their choices of personality traits of selected video game characters, the identification with video game characters, and their mood experiences while playing video games. The results on SMRS revealed that most of the participants scored between superficial moral judgment which is more characteristic for children younger than 14 and mature or profound moral judgment which is characteristic for participants and adults (Gibbs et al., 1992). That increase or decrease in the amount of time playing violent video games significantly related to higher or lower scores on SRMS test, meaning that the more time participants spent playing violent video games, the lower the score on SRMS, thus the lower level of moral maturation.

The results obtained on ATV (Funk et al., 1999) revealed that most of the participants did not show attitudes toward violence in real life, with only 18% of them demonstrating high proviolence attitudes in real life. That increase or decrease in the amount of time playing violent video games did not significantly relate to higher or lower scores on ATV test, meaning that the amount of time participants spent playing violent video games did not relate to participants' attitudes toward violence. However, when a group of violent video game and nonviolent video game players were compared, the results revealed that those who play violent video games obtained higher scores on the ATV test than those who were in the nonviolent video gaming group, while the



difference on SRMS scores did not appear significant. Therefore, the scores on ATV test obtained by participants who played violent video games predicted more proviolent attitudes towards violence in real life than those who played less or did not play at all. The amount of time playing violent video games did not show any effect on participants' levels of moral reasoning.

The interview data analyses revealed that participants who played violent video games generally stated that playing violent video games do not affect them while those who did not play violent video games believed that there is potential danger in playing violent video games for long hours and that it can negatively affect those who play. All interviewed participants agreed that there is a possibility that some players might try to imitate some scenes from violent video games but they all pointed out that it applies only to those who already possess aggressive traits in real life. The main theme derived from the field notes was an expressed need from educators to learn more about video games in general, and violent video games specifically. Most of the educators voiced concern about the possible negative effects of violence presented in violent video games on children and youth, and articulated the importance of media literacy programs in their schools with the special attention given to violent video games. In Chapter Five the results are examined further and related to the present literature and research on violent video games, violence, and moral reasoning. Implications for theory, practice, and future research are provided.

## **CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS**

The major purpose of this study was to explore the relationship among adolescents' violent video game playing, their levels of moral reasoning, and their attitudes towards real violence. While previous investigations have explored this relationship related to violence presented in television and movies (Anderson & Bushman, 2001; Bushman & Huesmann, 2006; Singer & Singer, 2001; Slater et al., 2003; Wilson, 2008), there was little research documenting possible relations among adolescents' violent video game playing patterns and habits, their levels of moral reasoning, and their attitudes towards real violence. This chapter provides a summary of the study that outlines the employed research methodology. It also provides a discussion of results and implications for theory, practice, and future research.

### **Summary of the Study**

There were 109 grade 8 students, mean age  $M=13.1$ , from seven public elementary schools in Ontario who participated in this study. A mixed methodology was employed exploring quantitative and qualitative data derived from adolescents' responses to the research questions. Adolescents' quantitative responses were derived from three research instruments designed to measure adolescents' video game playing, patterns, habits, and attitudes, their levels of moral reasoning, and their attitudes towards real violence. The qualitative approach was utilized to explore adolescents' video game playing attitudes, patterns, and habits based on qualitative responses to open-ended questions in a self-reporting questionnaire, in an unstructured follow-up interview, and accompanying field notes. The study took place in two stages.

### **First Stage**

The first stage consisted of administering a battery of three tests: a self-reporting background questionnaire (Appendix C) with open-ended and closed questions designed to explore adolescents' video games patterns, habits and attitudes (designed by the researcher); The Sociomoral Reflection Measure–Short Form (SRM-SF; Gibbs et al., 1992; Appendix D) to measure adolescents' moral maturity and The Attitudes Towards Violence Scale - Adolescent Version (Funk et al., 1999; Appendix E) to measure adolescents' attitudes towards violence.

### **Second Stage**

In the second stage of the study, a follow-up unstructured, open-ended interview was conducted and the interview protocol (Appendix F) was used with 10 participants from the sample who consented to participate with the intention of providing in-depth information about their video gaming patterns, habits, and attitudes, their moral reasoning, and their attitudes towards violence. In the preliminary analyses, the researcher used frequency counts to determine participants' video game playing patterns, habits, and attitudes based on their responses in the self-reported questionnaire. These frequency counts provided information about the amount of time participants declared playing video games, what kind of video games they played, and what their favourite video games were. This analysis served in the selection of participants for an interview. Ten participants were selected for an interview based on their responses to the self-reporting questionnaire. The violent video game playing group included participants who declared playing video games between one to three hours every day, who declared playing violent video games, who selected violent video games as their favourite games

that they played often, and who reported enjoyment in playing violent video games. The nonviolent video game playing group included participants who declared playing nonviolent video games from less than one hour to three hours every day, every other day, few times per week, few times per month, or on the weekends. They also selected nonviolent games as the games they played often, and they chose nonviolent games as their favourite games. This group also involved participants who declared not playing video games at all. Five participants (4 boys, 1 girl) were selected from the violent video game playing group, and five participants were chosen from nonviolent video game playing group. The rationale behind the selection for interviews was the need to obtain richer data from the violent video game playing group and the nonviolent video game playing group about their video game patterns, habits, and attitudes, their perception of violence in video games, and their perception on violence in real life. Field notes were made during both stages of the data collection process.

In the present study, eight primary research questions were addressed:

1. What are adolescents' video game playing patterns and habits?
2. What attitudes and feelings do adolescents report during and after violent video game playing?
3. What beliefs do adolescents describe about violence in video games and violence in real life?
4. Do adolescents report identification with video game characters and what are the personality traits they admire the most in their favourite video game characters?
5. What are adolescents' levels of sociomoral reasoning (SRMS) and what are their attitudes towards real violence (ATV)?

6. Is there a statistically significant relationship between adolescents' violent video game playing patterns and habits and their levels of moral reasoning/maturity?
7. Is there a statistically significant relationship between adolescents' violent video game playing patterns and habits and their attitudes towards real violence?
8. Is there a statistically significant difference between adolescents who play violent video games and those who do not play with regards to their levels of moral reasoning and their attitudes towards violence?

### **Discussion and Implications**

Following is a discussion based on the analyses of the data obtained in response to the eight primary research questions. The implications of the results for theory, practice, and future research are presented. The findings are put into the educational and the context of normal development, and suggestions are given for parents, for educators, and for future violent video game playing research.

#### **Adolescents' Video Game Playing Patterns and Habits**

Based on previous research on video games, there is no doubt that playing video games has become a very popular activity among adolescents (The Canadian Teachers' Federation, 2005; The Media Awareness Network, 2005; Olson et al., 2007; Roberts et al., 2005). In the most recent study on middle school students' video game playing habits (Olson et al., 2007), 94% of the adolescents reported having played video games with one third of boys and 11% of girls stating they played nearly every day. A study conducted in 10 European countries and Israel found that children ages six to 16 averaged more than a half an hour per day on video and computer games (Beentjes et al., 2001). The findings in the present study show consistency with previous research showing that

the majority of adolescents 96/109 or 88% (58 boys 38 girls) declared playing video games. Only 13 or 12% (3 boys, 10 girls) of adolescents declared not playing video games at all. It is evident that playing video games is one of the most popular activities for this group of adolescents.

The results of the present study also are in line with previous research about the amount of hours spent on playing video games (Olson et al., 2007; Roberts et al., 2005). On average, children play video games two hours a day, with 64% of all Canadian children playing at least one hour a day (The Canadian Teachers' Federation, 2005; The Media Awareness Network, 2005). More than a half of all adolescents (59 or 61%) in the present study declared playing video games every day for less than one hour to three or more hours a day. According to Sheff (2001), part of the attraction to video games is that most video games contain a new challenge that creates a need to continue playing, and there is a constant pressure to continue playing to compete with other players' high scores. Other possible reasons for the time adolescents spend playing video games could be attributed to the growing number of video game genres that attracts more players (Surette, 2002), to the improved accessibility to video games consoles and computers (Annenberg Public Policy Center survey, 2007). In addition, advanced technology is used to make video games more realistic, fun and challenging, and thus more appealing to young consumers (Anderson et al., 2007).

In addressing gender differences in video game playing patterns and habits, some existing studies report that girls display less interest in video games, have less game-related knowledge, and play less frequently and for shorter amounts of time than boys (Copeland, 2004; Dill et al., 2005; Downs & Smith, 2005; Jansz & Martis, 2007; Lucas &

Sherry, 2004; Williams, 2006; Williams et al., 2009). According to the results in the present study, girls showed less involvement with video games than boys; thus, playing video games remains more popular among the boys. Although 35/48 or 73% of girls in this study declared playing violent video games, only 10 (5%) girls reported playing video games for 1 or more than 1 hour a day. Only 5 (1%) girls reported playing violent video games (*Call of Duty* series, and *Grand Theft Auto: San Andreas*). Many previous studies reported that girls in general display less interest in video games, have less game-related knowledge, play less frequently, and for shorter durations than boys (Copeland, 2004; Dill et al., 2005; Downs & Smith, 2005; Heintz-Knowles et al., 2001; Jansz & Martis, 2007; Lucas & Sherry, 2004; Williams et al., 2009).

The reasons for girls' disinterest in video game playing are usually attributed to the content and the design of video games that mostly rely on stereotypes and outdated role models to portray female characters (Downs & Smith, 2005; Jansz & Martis, 2003; Lucas & Sherry, 2004). Many female characters in video games are portrayed as weak victims who are protected by powerful males (Glaubke, Miller, Parker, & Espejo, 2002; Gorriz & Medina, 2000; Greenberg, Sherry et al., 2008). In a recent study analyzing video-game content, Kirkland (2009) notes that many main video game characters are muscular males armed with huge weapons, wearing torn clothing, and posed in dominant, aggressive stances. As Kirkland observes:

The masculinity of video game culture, pervading broader game structures and goals, results in the predominance of violence, conquest, and militaristic action as the preferred mode of interactive engagement. All, it is argued, contributes to the reinforcement of hegemonic masculinity. (p.178)

Therefore, these male portrayals may encourage dependence in females and dominant gender roles in males and further deter girls from playing (Dietz, 1998; Kirkland, 2009; Carr, 2005). One interviewed boy in the present study explained, “You just get sucked into different world, you feel powerful and you don’t think about any problems you have (7S03; violent video game player).

Some researchers argue that the gender difference in video game playing patterns and habits might be due partially to access (Taylor, 2006; Woodard & Gridina, 2000). According to the annual Annenberg Public Policy Center survey (2007) on family media use, 76% of homes with at least one boy own video games as compared to 58% of homes with at least one girl that do not own video games. In the present study, two interviewed girls reported playing video games only when their siblings, mostly older brothers, invited them to play. Participant 7S05 (girl, nonviolent video game player) said, “I like playing video games with my brother, he plays a lot, and sometimes he teaches me different strategies in the games. I like playing video games just to try to beat him” Another girl explained, “I play video games only when my brother invites me to play with him. It is fun” (Participant 7S04, girl, nonviolent video game player). This finding may support research claim that the households with boys usually are equipped with video games consoles and that girls with male siblings have an access to video games.

Others claim that the gender gap in video game playing patterns and habits might have less to do with access than it does with play preference and game design (Downs & Smith, 2005; Scharrer, 2004). One of the main critiques of video game design related to gender has been that female characters are portrayed as highly sexualized protagonists which may deter potential female players (Downs & Smith, 2005; Scharrer, 2004; Smith



et al., 2003; Taylor, 2006). Moreover, the visual portrayals of females in some video games tend to highlight female's physical attributes and undermine female characters' ability to succeed without male help (Downs & Smith, 2005; Scharrer, 2004). This may explain in part why girls in the present study declared less attraction to playing video games for a long period of time compared to boys. It is also argued that the emphasis on competition and violence deters girls from playing video games. The girls generally prefer collaboration to competition and express distaste to the scenes of extreme violence and gore that are often present in violent video games (Funk & Buchman, 1996; Subrahmanyam et al., 2000). One interviewed girl in the present study elaborated, "I enjoy playing *The Sims* because it does not involve killing other people. I don't like playing violent video games, because there is a lot of blood and gore" (Participant 7S05; nonviolent video game player). Another interviewed girl when asked if she ever played violent video games responded, "Yes, but I did not like it, too much shooting and blood, it made me sick." (7S16, nonviolent video game player)

Although some recent research suggests that the amount of time girls spend playing video games increased (Bryce & Rutter, 2002; Carr, 2005; ESA, 2005), the present study did not confirm these findings. Although girls in present study have not abandoned playing video games altogether, they still reported playing video games for far shorter amounts of time than boys. It may be speculated here that the research based on a bigger sample (only 48 girls participated in this study) might produce different results.

### **Favourite Video Games**

The latest research declares that the most preferred video games are ones with human violence, with a general entertainment theme, and with sports themes (Bajovic,

2006; The Canadian Teachers' Federation, 2005; The Media Awareness Network, 2005; Pollon, 2003). Carr (2005) finds that girls rated qualities, such as being in control, content of magic and adventure, and level of difficulty, as the most important contexts of the video game, while Olson (2010) finds that video games with blood, intense violence, strong language, strong sexual content, and use of drugs were the most popular game series among the boys. The present study confirmed the results from previous studies. These results revealed that favourite video games for boys were first-person shooter genre (e.g., *Call of Duty series*), and the sports genre (e.g., *NHL* and *NFL* series). The favourite video games for girls were platform genre (e.g., *Super Mario* series), and simulation genre (e.g., *The Sims*). Therefore, there is a clear demarcation line between the preferences of boys and girls for favourite video games.

The question that remains is why violent video games are so attractive and compelling for boys. Jansz (2005) believes that the possible appeal of violent video games is "attractive for male adolescents (who are) in the midst of constructing an identity" and that the violent game serves as a "safe, private laboratory where they can experience different emotions" (p. 219). Jansz states that these emotions include anger, as well as contrasting emotions such as joy and fear. One interviewed boy from the violent video game playing group elaborated on his feelings while playing violent video games. He stated, "You just get sucked into different world, you feel powerful and you don't think about any problems you have, it feels good when you kill other people, but it sucks when you get killed" (7S03; violent video game player). Based on his response, different kinds of emotions, such as joy when winning and fear of losing, were equally presented. Jansz concludes that the solitude of video game play appeals to adolescent boys, who are

faced with the insecurities of showing their real emotions at this stage of development, and that playing violent video games gives them an opportunity to vicariously express the negative emotions that would be considered antisocial in the real world. An interviewed boy in the present study shared, “I like collecting points, I do enjoy shooting people, but I don’t think it is good to shoot people in real life” (7S26; violent video game player). This particular finding concurred with Jansz, confirming that violent video game players enjoyed the simulated aspect of the game as an opportunity to behave or emote in a manner not possible in the real world (Block & Crain, 2007; DeVane & Squire, 2008).

Ferguson (2011) argues that historically boys have enjoyed vicarious violence, in a variety of contexts. Boys typically enjoy playing with toy soldiers, playing war games, and watching wrestling matches. In the present study, an interviewed boy’s response concurred with previous research. He described his experience with video game playing, “It is fun, I enjoy the competing with others, and I enjoy the challenge of completing a mission” 7S17 (violent video game player). It may be that shared enjoyment of violent entertainment provides a bonding opportunity for males and a chance to express one’s masculine identity to peers. Boys, in particular, often use rough-and-tumble play fighting to establish dominance and a social pecking order, with no intention to harm (Pellegrini & Long, 2003). Olsen (2010) further explains:

Playing with those frightening images helps a child master the physical and emotional sensations that go with being afraid. Historically, that was an important and even lifesaving skill. Scary stories and games let children experience and

deal with those feelings at a time and place where they know they are safe. That is why fairy tales often dealt with themes like abandonment, murder, even cannibalism, and other content we now think of as ‘adult.’ (p.187)

Thus, the attraction to violent themes presented in video games seems to be part of normal development for boys (Przybylski et al., 2010). Carr (2005) finds that girls rated qualities of magic and adventure content, and level of difficulty as the most important content of video games. The interview findings in the present study confirmed previous research. One interviewed girl, when asked why she liked playing video games, explained, “I play *Mario*, it is fun, it gives you sense of adventure, I also play *The Sims*, it gives me an opportunity to be creative, I can create my own space, my pets, my garden” (Participant 7S16, girl, nonviolent video game player). Mayer (2003) posits that females are more attracted to media programs that allow social interaction, and are less attracted by action-oriented formats which provide less social interaction. The results of girls’ video game preferences in the present study echoed these findings. The girls in the present study declared preference for platform genre (*Super Mario* series), and simulation genre (*Sims*). *Super Mario* video games series offer the sense of adventure, and *The Sims* offers substantial and meaningful social interaction between players, and between characters (The Center for Mental Health and Media, 2007). As one interviewed girl pointed out, “It is fun to complete missions on line with my friends” (7S05 girl, nonviolent video game player). Therefore, boys and girls differed in their favourite video games preferences, confirming that boys enjoyed first-shooter and sport genre video games, whereas girls preferred platform genre and simulation genre video games.

### **Video Game Players: Attitudes and Feelings**

According to previous studies, the most popular reasons behind playing video games are fun, excitement, and challenge, as well as when there is nothing else to do (Greenberg et al., 2008; Olson, 2010; Valkenbourg & Cantor, 2000; Williams & Clippinger, 2002). The findings about video game preferences and the reasons behind these preferences in the present study supported findings from previous research. Offered choices in the self-reporting questionnaire for the reason of video game playing were: “It is fun,” “It is exciting,” “It is something to do when I am bored,” “I like the challenge of figuring it out,” “It helps me relax,” “I like using guns and weapons,” “I feel less lonely,” and, “It helps me vent my anger.” The majority of adolescents, both boys and girls, in this study reported playing video games because it was fun, exciting, and something to do when they were bored; thus, for them playing video games still remained an activity for entertainment and amusement. As 1 interviewed participant explained, “I am on facebook a lot, I play games there. It is entreating, it is fun, and it is really something to do when I am bored. And I get bored a lot lately” (7S01, girl, nonviolent video game player).

Olsen (2010) posits that challenge was a key factor for a game to be fun and appealing to video game players. More than a half of adolescents (38 boys and 30 girls) in the present study stated that the challenge and the excitement of the game were main reasons for playing video games. An interviewed boy (7S17; violent video game player) described his experience with video game playing, “It is fun, I enjoy the competing with others, and I enjoy the challenge of completing a mission.” It appears that video game

players go through the “challenge of figuring out the game’s regulatory mechanisms and casual connections before any fun can be held” (Olsen, 2010, p. 183).

These particular findings may have implications for educational practice. As educators, most of us are aware of many benefits for our students when they are engaged in an activity they perceive as exciting and challenging (Rosas et al., 2003; Russoniello et al., 2009). For instance, when the lesson is presented to them in an interesting and exciting way, and is tied to real-life experiences, they become more motivated, pay more attention, and become more actively involved in learning (Gentile & Gentile, 2008; Levin et al., 2008). Considering that video games are a very popular activity among our students, they can become a very valuable tool in a classroom if used properly and purposefully (Akilli, 2007; Corbett, Koedinger, & Hadley, 2001; Gee, 2003; 2007; Gentile & Gentile, 2008; Prensky, 2001; Turkle, 2010). If it is established that the challenge and the excitement are among the main reasons that students choose to play video games, then educational video games should include challenge and excitement with a clear educational goal, challenging outcomes, and variable levels of difficulty in order to become more interesting (Gee, 2003; 2007; Shaffer et al., 2005). If designed properly, with the elements of challenge and excitement, the educational video games may become an activity for children “when there is nothing else to do.” As Gee (2007) elaborates:

The cutting edge of games and learning is not in video game technology, although great graphics are wonderful and technical improvements are important. The cutting edge is realizing the potential of games for learning by building good games into good learning systems in and out of classrooms and by building the

good learning principles in good games into learning in and out of school whether or not a video game is present. (p. 22)

Well-designed video games with the elements of challenge and excitement and with clear educational goals may also provide more reasons to encourage girls to get engaged in playing video games (Gee, 2003; 2007; Shaffer et al., 2005). Based on changes to cultural and societal context, today's young learners, therefore, require a new approach to instruction (Bandura, 2002; Gee, 2007; Norton-Meier, 2005; Shaffer et al., 2005). This relatively unexplored method of enhancing students' learning merits further consideration and future research.

### **Reasons for Playing Video Games**

The boys and girls in the present study significantly differed on two questions about their reasons for playing video games: I like using guns and weapons presented in video games, and It helps me vent my anger. There were 33/61 (54%) boys who reported playing video games because they like using guns and weapons compared to only 2/48 (4%) girls. These gender differences may be partially explained by the choice of video games that adolescents reported playing. Boys reported playing violent video games (e.g., *Call of Duty* series) that use guns and weapons (Bajovic, 2006; Pollon, 2003; The Media Awareness Network, 2005; Olsen et al., 2007). One interviewed boy in the present study said "I like using guns and being in control, and as a first-person shooter I am" (7S03; violent video game player). It can be argued that enjoyment in using guns and weapons for boys may reflect the challenge of understanding and controlling new weapons, as a means of gaining points and destroying video game characters presented as "enemies" (Olson, 2010). The girls' avowed dislike of violence presented in video games may be

attributed to their dislike of guns and weapons considering that most video games which use guns and weapons also contain elements of violence.

Another finding based on questionnaire in the present study identifies 22 boys and nine girls reported that playing video games helped them vent their anger. Three interviewed boys identified as violent video game players also stated that playing video games helped them vent their anger. One boy shared, “I like collecting points, I do enjoy shooting people, but I don’t think it is good to shoot people in real life. It is a good stress reliever. I feel relieved and less angry after playing” (7S26; violent video game player). Previous research claimed that playing video games with violent content may have a positive effect on the players as it allows the discharge of latent aggressiveness in a socially acceptable way (Cunningham, 1995; Gardner, 1991; Graybill et al., 1987; Hull, 1985). According to catharsis theory, if the anger stays bottled up and the person does not get a chance to relieve the pressure caused by anger, the person will eventually explode in an aggressive rage (Breuer & Freud, 1895; Feshbach & Singer, 1971). Therefore, according to this theory, playing violent video games may have some positive effects on players if they are provided with an opportunity for venting their anger.

Cognitive Neoassociation theory (Arriaga-Ferreira & Ribeiro, 2001; Bartholow & Anderson, 2002; Berkowitz, 1984) opposes these claims and predicted that venting may increase rather than decrease angry feelings and aggressive behaviours. As activities considered cathartic also are aggressive, they may lead to the activation of other aggressive thoughts, emotions, and behavioural tendencies, which, in turn, could lead to greater anger and aggression (Arriaga-Ferreira & Ribeiro, 2001; Bartholow & Anderson, 2002; Berkowitz et al., 1984). Although the present research confirmed that some



adolescents, mostly boys, declared that playing video games helped them vent their anger, further research is necessary to support or dismiss either of these claims. It can only be speculated about the kind of emotional reaction that playing violent video games may cause. This, indeed, calls for future research based on more adolescents and a possible experimental approach where adolescents' states of emotion while playing violent video games should be measured. For instance, the measuring of change in heart rate or blood pressure before, during, and after video game playing may show physiological changes of increase or decrease of heart rate or blood pressure that may serve in interpreting the emotions that players experience.

### **Video Game Playing and the Mood**

When asked about how playing violent video games affected their mood, half of the participants declared that playing violent video games made them feel excited and competitive. According to Williams and Clippinger (2002), playing video games are expected to be enjoyable only if there are a sufficient number of competitive situations. In video games, players try to resolve the task by performing effective actions which ends either with success (e.g., kill the monster) or with failure (e.g., killed by monster). In both cases, the emotional state of the player is affected. Success may lead to a strong motivation to continue to the next level and maintain positive emotions of winning. Failure, on the other hand, may produce negative emotions of anger and frustrations which also can motivate players to continue playing in order to solve the task in the next level. In both cases, competition is a leading force in the continuation of playing video games (Greenberg et al., 2008; Williams & Clippinger, 2002). The enjoyment of gaining the points and rewards in video games is related to the player's competitiveness; the more

competitive the player, the stronger desire to gain more points and rewards (Adachi & Willoughby, 2011; Carnagey & Anderson, 2003). The results in the present study confirmed that competition is one of the main emotions triggered during or after playing video games. 51 adolescents (33 boys and 18 girls) agreed that they feel competitive while playing violent video games. An interviewed boy also elaborated on the importance of gaining points and rewards in video games. Participant 7S03 (boy, violent video game player) explained, “The main point of these games is if you shoot more people, you gain more points. It is really about points and rewards, not about violence.” According to Carnagey and Anderson (2003), as video games progress, extra points or advanced levels usually reward the players. The problem with violent video games may arise when the players receive rewards for performing an action of violence which may result in an increase of aggressive behaviour.

According to Huesmann’s (2001) script theory, aggressive scripts incorporate normative beliefs about the appropriateness of an aggressive action in a repeated situation. Those normative beliefs control whether or not aggressive scripts are memorized and whether they will be retrieved and translated into action in a particular situation (Bandura, 2001). Typically, violent video games reward aggressive actions by giving points (rewards) to players, thereby promoting the understanding that aggression is an appropriate way of dealing with interpersonal conflicts and conflicts with others in the context of violent video games. The findings in the present study did not give enough evidence to support or reject these research claims. One interviewed boy stated:

My mom did not let me play violent video games and she kept saying ‘You are killing people’, but it is not about killing, you don’t want to shoot the person, you

are just collecting points. When I play I don't think now I will shoot him in the head and blood will go all over. (7S17, boy, violent video game player)

However, it may be argued that based on the present findings, gaining points and rewards in violent video games is more about competition and winning than about aggressive acts presented in violent video games.

The percentage of participants who declared that playing video games made them feel competitive significantly differed by gender. One interviewed boy elaborated, "I like collecting points, I feel very successful at the end when I win a battle." (7S26; violent video game player). The chance to compete and win was one of the strongest motivators for video game playing among boys; thus, the boys more than the girls enjoyed the competitive situation presented in video games. Research in sports psychology demonstrates that girls are less attracted to competitive activities than boys (Klimmt, 2009). Most of the video games that girls reported playing (e.g., *The Sims*) do not involve elements of competition, therefore, it is reasonable to assume that girls may purposefully avoid video games that involve completion.

The past research on video games suggests that the violent content in video games presents some risk for aggressive behaviour. However, recent research by Adachi and Willoughby (2011) argue that competitiveness, not violent content, may be responsible for elevating aggressive behaviour in the short term. If it is accepted that competitiveness presented in violent video games may cause aggression in real life, the results from the present study may indicate potential concern. Educators should be aware of the potential negative effect that competitiveness in violent video games may have on our students and develop adequate critical media literacy strategies to help them balance between

competitiveness and caring about each other. Those strategies should help students to become critical and literate when interpreting media messages “so that they control the interpretation of what they see or hear rather than letting the interpretation control them” (Thoman, 2011, p.4).

Another significant gender difference emerged related to the participants who declared that playing violent video games made them excited or relaxed. There were 39 boys and 15 girls declared that playing violent video games made them feel excited. There were 30 boys and three girls who declared feeling relaxed. It has been suggested that adolescent boys may seek out sensation-producing activities, such as video game play, for exciting experiences. One participant (7S03 boy, violent video game player) explained, “I like playing violent video game because it is exciting and challenging, and I like winning”. Thus, violent video game playing may be providing the boys with acceptable levels of excitement and challenge-seeking emotions (DeVane & Squire, 2008; Dolan, 2002; Durkin, 2006; Jansz, 2005; Olson, Kutner & Warner, 2008). These results suggest that boys and girls play video games for different reasons, thus, further illustrating gender differences in video game patterns.

Another important finding related to adolescents’ reports on how they feel while playing video games emerged from the present study. Almost one third of the adolescents (30/109; 19 boys, 11 girls) reported that playing video games makes them feel aggressive. The interviewed adolescents from the nonviolent video game playing group also believed that some players may become aggressive in real life after playing violent video games for prolonged periods of time. One girl stated, “Yes, I believe that some kids may become violent after playing, there is too much violence in these games you know,

and if they played it for hours, they may want to try it on in real life.” (7S04, girl, nonviolent video game player). Participant 7S05 (girl, nonviolent video game player) also believed that some people do become aggressive after playing violent video games explaining: “For some people, they really do not know how to control their anger, and when they play violent video games, that can motivate them to become more aggressive.” It is interesting that none of the interviewed boys from the violent video game playing group provided an insight about becoming aggressive during or after playing video games. It can be speculated here that the girls who do not play violent video games express bias against violent video games.

According to previous research on violent video games, repeated exposure to violence in video games may lead to more aggressive attitudes, behaviours, and to desensitization to real aggression (Anderson et al., 2007; Bartholow, Bushman & Huesmann, 2006; Bushman & Sestir, 2006; Carnagey & Anderson, 2003; Eron, 2001; Funk, et al., 2004; Moller & Krahe, 2009). Krahe and Moller (2004) find that participants who played violent video games for prolonged hours demonstrated an increased amount of physical aggression and an increased acceptance of physical aggression. Funk et al. (2004) discovered that prolonged exposure to video game violence was associated with lower empathy and stronger proviolence attitudes. The concern is that intense engagement with violent video games may increase the probability that violent behaviours experienced in video games will generalize outside the game situation. The results in the present research did not provide enough evidence about the relation between playing violent video games and aggressive behaviours in real life. It is important to stress the need for future research to further explore the relationship between

the aggressive feelings that adolescents reported while playing violent video games and subsequent behaviours.

### **Violence in Video Games and Violence in Real Life**

Twenty-one adolescents (15 boys and 6 girls) in the present study declared that they were involved in real-life situations that may have been influenced by violent video games. They elaborated that they witnessed fights similar to the fights presented in video games implying that the persons involved in fighting imitated some techniques and moves from violent video games. An interviewed girl elaborated, “People “act” a scene from a video game, and constantly talk about it” 7S16 (nonviolent video game player) while another girl (7S20, nonviolent video game player) approached this question critically stating, “Some go out punching people because that is what characters do in video games. It is just stupid and immature.” An interviewed boy (7S03; violent video game player), explained that he and his friends sometimes go to the forest and play “air soft guns based on *Call of Duty*.” It is interesting that interviewed boys who play violent video games found some techniques from those games to be useful in real life. One boy described, “Some people try to pick fights with me, but back off after I use the line from the game to insult them” (3S20; violent video game player). Other examples included, “Well, my one friend was trying to hurt me and I used a fighting move I saw in a game” (7S18; boy; violent video game player), “If someone is badmouthing me I may use a line from a game” (3S22; boy; violent video game player). It can be speculated that for those boys, learning different techniques from violent video games have a potential to be useful in real-life situations.

It is very interesting that the interviewed adolescents who declared playing violent video games believed that violent video games can influence violence in real life. It is also very interesting that they were very adamant that it can only happen to younger players who are not mature enough to differentiate between fantasy and reality. An interviewed boy elaborated:

I think that it can have some negative impact on younger players, I do not believe that young kids should play them because they do not know what is real and what is not. We know what is happening, 9-year-olds really do not understand and they can use that violence to show their friends, like this is cool.” (718, violent video game playing group).

This finding supports the previous research claims that younger players are more susceptible to imitating violent acts seen in the media, and are less likely to be able to distinguish between fantasy and reality (The Media Awareness Network, 2005; Markey & Markey, 2010; Vessey, 2000; Villiani, 2001). Subrahmanyam et al. (2000) also express concern that overplaying of video games may affect younger children’s ability to distinguish real life from simulation, and as such, may perceive violence in video games as an acceptable way of problem solving and conflict resolution in real life. They state that, “computerized games move users into a world where the distinction between real life and simulation may not be clear, especially for younger children” (p. 137-138). The interviewed participants from the violent video game playing group did not believe that they themselves were negatively influenced by playing violent video games. As one boy pointed out, “It is really about points and rewards, not about violence. It is just a game.” They expressed that they know the difference between behaviours that are presented in

games and behaviours in real life, and generally stated that playing violent video games does not affect them at all because they know that “it is just a game.”

The interviewed participants expressed concern that those who show aggressive traits in real life are more prone to play violent video games, and, thus, act aggressively afterwards. Participant 7S05 (girl, nonviolent video game player) believed that some people do become aggressive after playing violent video games explaining, “For some people, they really do not know how to control their anger, and when they play violent video games, that can motivate them to become more aggressive.” These findings echoed some previous research stating that personality factors, such as temperament, appeared to have a mediating role, with some research suggesting that high-trait aggressive children were most affected (Kiewitz & Weaver, 2001; Slater et al., 2003). Therefore, the effects of violence presented in the media may account for a small proportion of an individual’s predisposition for aggressive behaviour. Environmental factors that play an important role in a child’s development, such as family, peers, and siblings, also can influence a child’s aggressive thought and behaviour. For example, growing up in a violent family and being a victim or witnessing violence is known to have a strong effect on a person’s predisposition to act aggressively (Browne, 1998; Ivory & Kalyanaraman, 2009; Kutner, & Olson, 2008). For instance, Ferguson (2011) finds that family violence exposure, not video game violence, is a strong predictor of violent acts. It should be also noted that some children are especially vulnerable to exposure to violent video games because of pre-existing characteristics. More aggressive children, ostracized by their peers, may find justification for their behaviour in the scenes of violence that characterize the media’s representation of life (Kiewitz & Weaver, 2001; Slater et al., 2003). Thus, the susceptible



child may become enmeshed in a continuous cycle of violence viewing and aggression, a cycle which leads to the development of habitual aggressive behaviour. This high-risk group includes young children (ages less than 11), children who are bullies or bully-victims, and children with problems in emotion regulation (Anderson et al., 2003; Funk et al., 2002). It has been proposed that these groups are especially vulnerable to the disruption of moral development and moral behaviour (Funk, 2001; Lynch, 1999). There is still much more research to be done before we can fully understand both the positive and the possible negative implications of violent video game playing.

In informal dialogues with the principals and the teachers while visiting schools, they expressed concern about a possible connection between violence presented in violent video games and violence in real life (Field Notes, 2011). I had a very interesting conversation with one of the teachers. She shared that there were two students in her class who were very much into playing violent video games, and that she was concerned about their sometimes aggressive behaviour. She explained,

Just yesterday, I was outside during the break, when an incident happened. Those two boys were goofing around, and being silly when all of sudden they started pushing another boy and yelling ‘Move away, I am Alex Mason and I will kill you with my secret weapon.’ I intervened right away, and later on I talked to them and found out that they were imitating the moves from the video game *Call of Duty: Black Ops*. I mean, what kind of game is it? (Field Notes, 2011)

Some past research on violent video games confirmed that the transfer of the aggressive feelings to real-life situations caused by playing violent video games is possible (Anderson et al., 2007; Bushman & Huesmann, 2006; Carnagey & Anderson, 2003;

Eron, 2001; Funk et al., 2003). On the contrary, Ioannidis (2005) posited that the influence of violent video games on acts of aggression or violence in real life is minimal, and that there is a possibility that media propagates a connection between violent video game playing and school shootings contributes to this belief. It can be argued that the concern about connection between violent video game playing and violence in real life expressed in the present study may be supported partially by this claim.

### **Video Games and Identification**

According to Erikson (1968), identification with others is a normal part of development that allows children and adolescents to mature. Children and adolescents identify with both people and media characters and explore alternative ideas, images, attitudes, and identities. In the media saturated world, adolescents are influenced by tempting images that may affect the formation of their identities (Cohen, 2001; Giles & Maltby, 2004; Griffiths, Davies, & Chappel, 2004; Oyserman et al., 2004). In this sense, identification becomes a mechanism through which adolescents experience reception and interpretation of the media messages. When asked about their favourite video game characters, adolescents in the present study chose video characters from their favourite video games. The percentage of participants significantly differed by gender for their favourite video game character choices. The most popular video games among boys were the games from the *Call of Duty* series, and the most popular characters were Alex Mason (42 boys), Frank Woods (26 boys), and John “Soap” MacTavish (36 boys), all main characters from the *Call of Duty* series. Girls chose their favourite characters from the *Mario Brothers Series* (20 girls) and *The Sims* (12 girls). Therefore, the most popular video game characters for boys were Alex Mason, Frank Woods, and John “Soap”

MacTavish, the characters from the *Call of Duty* series, first-person-shooter video games with violent content that is rated "Mature" for portraying authentic military combat with realistic scenes of violence and gore. Mario from the *Mario Brothers* Series platform genre video games, and the characters from *The Sims*, strategic simulation genre video games were most popular among the girls.

### **Identification with Favourite Video Game Characters**

More than half of the adolescents (56/109, 52%), (37 boys, 19 girls) declared that they would like to be like their favourite video game characters. The percentage of participants who declared that they would like to be like their favourite video game characters, significantly differ in gender. According to the results, there were more boys than girls who declared that they would like to be like their video game characters which can be explained with the finding that boys in general declared spending more hours playing video games. When asked about personality traits they admired in video game characters, the participants chose the following traits: brave/courageous (83%), persistent (79%), successful (70%), smart (57%), and funny (63%). Both, boys and girls admired these personality traits. The gender differences based on the choice of personality traits of dominant and aggressive were evident. More boys than girls admired the traits of dominance and aggression in their favourite video game characters. One interviewed boy explained, "I like *Frank Woods*, he is good at shooting, he is aggressive, and brave. That is why I admire him" (7S17, boy, violent video game player). Another boy elaborated, "I like Alex Mason because he is brave, courageous, and he always wins (7S18; boy, violent video game player). Cohen (2001) describes two main identification processes and defined a difference between identifying with someone and as someone. In video games,

first-person games allow the game player to play as a character allowing gamers to create their game character by choosing the skill level, story, dress, demographics, plot, etc. Research suggests that self-created character attributes can heighten identification perceptions (Konijn & Hoorn, 2005), and the ability to interact with self and others inside the video game environment may influence how a player identifies with the character and the associated actions (Hoorn et al., 2003). Adolescents might select models that possess qualities they already have or models that possess qualities they do not have but wish they had real heroes they can admire (Bandura, 1989; Huesmann & Eron, 1986; Hoffner & Cantor, 1991; Oyserman et al., 2004). Therefore, identification with media heroes can be based on similarity identification or wishful identification.

In similarity identification, the observer identifies with a character because they share common and perceived desirable characteristics. Most identification conceptions in media effects research are based on similarity, although identification is often measured as general “liking” of a character (Cohen, 2001; Konijn & Hoorn, 2005; Zillmann, 2000). In wishful identification, the observer desires to imitate the character, either as a role model for future action or by extending responses beyond the viewing situation or imitating a particular behaviour (Bandura, 1989; Hoffner & Buchanan, 2005; Hoffner & Cantor, 1991). Wishful identification provides a glimpse of “what if,” and such a glimpse is a powerful predictor of future behaviour, especially in adolescents (Cohen, 2001). In both cases, whether the identification is similar or wishful, based on the results in the present study, there is no reason for concern. Whether the adolescents chose positive personality traits because they already possess them, or whether they chose those personality traits they desire to possess, positive identification has taken place. There is

no concern for children who are courageous, persistent, successful, and funny, or if they strive to identify with real or media characters with these positive personality traits.

In the present study, the most favourable video game characters for boys were Alex Mason, Frank Woods, and John “Soap” MacTavish, who are soldiers presented as brave, smart, and persistent characters who were fighting for their country’s best interest. However, they sometimes also express aggressive, dominant, and violent behaviour in accomplishing their mission goals. The expression of these rather negative personality traits may become problematic in the process of players’ identification. In the present study, 44% of the adolescents (37 boys; 11 girls) chose dominance as their preferred character trait, while 41.3% (36 boys; 9 girls) chose aggressiveness as the most favourable personality trait. The gender differences based on the choice of these personality traits of identification was evident. More boys than girls admired the traits of dominance and aggression in their favourite video game characters. This particular finding about differences between boys and girls may be supported by previous research stating that elements of violence and aggression deter girls from playing, and that girls continually express dislike for aggression in video games (Funk & Buchman, 1996; Subrahmanyam et al., 2000). According to Hoffner and Buchanan (2005), boys identified with male characters whom they perceived as successful, intelligent, and violent, whereas girls identified with female characters whom they perceived as successful, intelligent, and attractive. This outcome suggests that boys may find violent characters to be worthy role models. According to Jansz (2005), many video games enable male adolescents to enact extreme forms of masculinity that are unattainable in their daily lives. In developing their identity, adolescent boys who presume male characters presented in video games as “real

men” may use these images to guide their own behaviour (Jansz, 2005). As Konijn et al. (2007) observe “In video games, “real men” are not “sissies” - they are tough and aggressive.” (p.6)

Although these were boys’ preferred character choices only, it may become problematic if the process of identification with these character traits occurs in real life. Recent meta-analyses have shown that violent video games can increase aggression, and one of the factors that may increase media-related aggression is the identification with violent characters (Anderson, 2004; Anderson & Bushman, 2001; Funk et al., 2004; Konijn et al., 2007). Based on Bandura’s (1989) abstract modeling and observational learning, children may adopt certain values by which they may henceforth judge the behaviour of others, and later internalize that behaviour as their own. Bandura postulates that observational learning does not limit itself only to the adoption of new, presumably good moral values and behaviours; it also may enforce or weaken existing values. As such, children’s moral thinking and moral development may vary according to the content offered within the environment. If the environment, in this case violent video game playing, provides rather negative examples of values through violent characters, then the issue deserves to be addressed.

Although less than half of the adolescents chose the characteristics of dominance and aggression as their favourite personality, it is still a significant finding. By thinking about themselves as characters in violent video games, adolescents at this stage may not always be able to recognize the ways in which character choices and their actions work together to influence the construction of their identity (Durkin, 2006; Jansz, 2005). It can be argued here that even characters from violent video games who express extensive

violence and aggression may positively influence identification in adolescents if they are taught not to focus on the violence but on the values such as persistence, successes, and bravery. As Olsen (2010) states:

From an educator's perspective, increased immersion in a game through identification with a character, and discovering events through that character's experiences, may increase factual learning and introspection concerning moral dilemmas. (p. 184)

Durkin (2006) suggests that educators and parents could help children to identify positive and negative personality traits and behaviours of the video game characters, and teach them conflict resolution and cooperation. For that to happen, they all need to be aware of the possible effects that the identification with violent video game characters may have on the children. Most of all, educators and parents need to gain additional knowledge about the video game content, what kind of video games their students and children play, who are their favourite characters, and why. To minimize potential harm, parents might focus on video game literacy and limit unsupervised play, or get more involved in playing video games with their children (Klimmt, 2009). According to Lickona (2008), it is an imperative to involve parents as partners and to foster caring beyond the classroom by using inspiring role models and opportunities for community service that can help students learn to care by giving care. Gee (2003, 2007) argues that video games are powerful models for students' learning, and it can be argued that video games may become powerful models of learning for parents as well. By becoming informed and knowledgeable about video game context, and by playing video games with their children, parents will be able to learn about video games, and be able to create

opportunities for dialogue about good and bad characters presented in video games. One of the games that involves parents and children represents a good example of how parents and children can learn together. *Passing the Ball* is a video game proposed by *Games for Change* in which video game players are shown through a thoughtful and allegoric game of catch that adults must work with children to help them develop online safety skills. Over time, children can be armed with the knowledge to make their own decisions online and, ultimately, act as their own safeguard from dangerous content.

In an informal conversation with the teachers and the principals (Field Notes, 2011) in schools where data collection took place, many of them expressed the need to know more about violent video games and their possible influences on their students. It may be that the key in deconstructing the meaning behind video games for educators and parents is in delivering different critical media literacy workshops which will introduce different strategies about video gaming literacy. These workshops should enable educators and parents to work collaboratively in helping children to understand the real messages from the video game environment.

### **Sociomoral Maturity and Attitudes Towards Real Violence**

From a theoretical perspective, moral reasoning is defined as the ability to make ethical choices when a moral dilemma is encountered and the ability to articulate reasons for the choices that are made (Lee, 2004; Leman, 2001). Thus, moral reasoning provides the individual with certain knowledge and understanding that may (or may not) be used in making concrete moral choices. In that sense, moral reasoning can be identified as a competence of moral judgment and is defined as a process of judging which action is morally right or wrong (Rest et al., 2000).



### **Sociomoral Reasoning**

Piaget (1965) suggests that moral development emerges from peoples' actions, and that the construction of their moral understanding is a result of their interactions with the environment. Piaget believes that the early stages of moral development are characterized by egocentrism when children focus more on the outcome of an act and fulfillment of their own needs. A later stage of moral development is associated with the ability to imagine the perspective of others and, according to Piaget, the concern for others becomes more important than the concern for one's own needs. During adolescence, this pattern of thinking about moral issues is assumed to develop from a rather simple egocentric orientation to a more complex social orientation. Kohlberg (1984) stresses that at the earlier stage "the centers of moral choice and feelings are based on the outcome of personal well being" (p. 393), while for adolescents, moral development is associated with the ability to imagine the perspective of others. At the heart of each stage is the motivation for making the right choice. According to Piaget and Kohlberg, children usually develop more mature moral judgment in the natural course of interactions with others. This mature moral judgment normally achieved in adolescence according to Gibbs (1994, 1995, 2003) involves a growing ability to take the perspective of others.

Previous studies on media violence and moral reasoning found that watching a great deal of violence on television or movies may hinder children's moral development, and that some children who were exposed to media violence may use less advanced moral reasoning skills ( Eron, 2001; Funk et al., 2004; Krcmar & Vieira, 2005; Krcmar & Curtis, 2003; Krcmar & Valkenburg, 1993). Funk et al. found that adolescents who had

long-term experience with violent video games were less empathetic than those who did not have much experience with video games. According to the results in the present study, the mean score on SRMS test was  $M=2.41$  and  $SD=.53$  showing that the most participants scored at the Stages two and two of sociomoral maturity. There were 54 (55%) participants, who scored at Stage two, and 42 (44%) participants who scored at Stage two, and only 2 (2%) participants who scored at the Stage 4 of sociomoral maturity. Therefore, according to Gibbs et al. (1992), more than a half of the participants scored at the level of superficial moral judgment (Stage two), which is more characteristic for children younger than 12. Forty-four participants scored at the level of mature or profound moral judgment (Stage three), which is characteristic for adolescents and adults. This particular finding is rather puzzling considering that according to Gibbs et al., adolescents should be scoring at the higher levels of moral maturity. A chi-square test of independence was performed to examine the relation between gender and scores on SRMS. The results revealed that there was no significant difference ( $\chi^2(1, N = 98) = 10.1, p = .018$ ) on SRMS scores between boys and girls in this study.

In the present study, in order to explore the association between the amount of time playing violent video games and the scores on SRMS test for the violent video game playing group, an analysis of bivariate correlation was performed. The results showed that Pearson's  $r$  for the correlation between the amount of time playing violent video games and the scores on SRMS is  $r = -.324$  showing that there is a strong, negative correlation between the two variables. The significant (2 tail) value  $p=.04$  showed that the correlation between the two variables was statistically significant. That means that an increase or decrease in the amount of time playing violent video games significantly

relates to higher or lower scores on the SRMS test. An increase of the amount of violent game playing is associated with lower SRMS scores. The results on an independent sample T-test relieved that there was significant difference ( $t=2.09$ ;  $p=.049$ ) on SRMS scores between participants who played 1 hour a day and those who played 3 or more hours a day. No significant difference was found between those who played for one hour and two hours a day, and two hours and three or more hours a day. The mean on SRMS scores for participants who played violent video games for one hour was  $M= 2.85$ , the mean on SRMS scores for participants who played violent video games for two hours was  $M= 2.76$ , The mean on SRMS scores for participants who played violent video games for three or more hours was  $M= 2.30$ .

In the recent study, Vieira and Krcmar (2011) find that children's prolonged violent video game playing was negatively associated with ability of taking perspective and ability to sympathise with others. The ability to take perspective and sympathy were negatively related to the perception of accepting of unjustified violence which may lead to negative influence on moral reasoning. The results of the present study may indicate similar effects. In the violent video game playing group, the participants who declared playing violent video games for 3 or more hours a day scored lower on the test of sociomoral maturity (SRMS-SF) than participants who played violent video games between one and two hours a day. The participants in the violent video game playing group who declared playing violent video games for three or more hours a day, scored lower on SRMS test indicating that most of them were at level two of sociomoral maturity.

The results on the difference between the means on SRMS scores between the violent video game playing group and the nonviolent video game playing group did not attain significance. According to the statistics for SRMS test for the violent video game playing group ( $M=2.62$ ,  $SD=1.3$ ;  $N=45$ ), and for nonviolent video game playing group was ( $M= 2.82$ ,  $SD=.1.3$ ,  $N=51$ ), both groups scoring between level two and three of moral maturity (Gibbs, 1995). Although the results of these two analyses may appear contradictory, it can be speculated that it is the prolonged amount of playing violent video games which may hinder moral development in some participants. Gibbs (1995) believes that most adolescents should be reaching Stage three of moral maturity which is characterized by advanced moral judgment and mutual caring and trust. According to Gibbs (1995), adolescents who have not advanced in moral judgment beyond Stage two are at the “moral judgment delay” stage. Gibbs found that the greatest delay occurred in children’s responses to questions related to obeying the law. Children who were morally immature used reasoning that generally related to the risk of getting caught and being punished. In contrast, morally mature children who were at Stage three used reasoning that lawbreaking will result in chaos that can further cause insecurity, or even loss of trust in the world. One participant in this study, who scored low in both ATV and SMRS tests, and who reported playing violent video games for more than three hours a day, was asked during the interview if he would take something that does not belong to him. He responded in the affirmative saying: “Anytime, if I knew I was not to be caught” (Participant 7S18). This example represents moral reasoning at Stage two of moral maturity according to Gibbs (1995).

Gibbs (1995) argued that adolescents who have not advanced in moral judgment beyond Stage two usually have not had enough opportunities to take different roles or consider the perspective of others. Piaget (1932) described next moral developmental stage as "do as you would be done by" (p. 323), while Kohlberg (1984) believed that at the conventional morality stage, adolescents become more serious about morality, and they start to believe that good behaviour means having good motives and interpersonal feelings such as love, empathy, trust, and concern for others. If we consider that some participants in the violent video game playing group spent three or more hours a day playing video games while assumingly detached from the outside world, it becomes evident why they miss opportunities to take different roles or consider the perspective of others outside of the virtual world. This is where teachers, parents, and students should start working collaboratively in providing those missing opportunities. It can be suggested by working collaboratively to create opportunities for children's participation in charity work, in community involvement, and in extracurricular activities will provide them with different perspectives and positive role taking opportunities. Kohlberg (1984) proposes that different social experiences are important as they promote development by stimulating mental processes and that children's moral development depends on their role in different social contexts. The social learning theorists (e.g., Bandura, 1989; Nucci, 1997; Turiel, 1983) conceptualized moral development as a social learning process believing that children learn what is morally acceptable through direct or symbolic stimuli and reward during the learning process. As such, children's moral thinking and development varies according to the content offered within the environment. Piaget (1965) emphasize the importance of school environment in children's moral development

stating that schools should work on cooperative decision making and problem solving, nurturing moral development by requiring students to work out common rules based on fairness. Piaget (1965) also suggests that classroom teachers must provide students with opportunities for personal discovery through problem solving, rather than indoctrinating students with norms. In the context of video game playing, teachers are required first, to understand the content of video games and the story line in the game, and second, to initiate discussions about video games in the classroom. Through this dialogue, they can guide children to differentiate between right and wrong within the stories depicted in video games.

Character education should also serve to further enhance moral skills such as sensitivity to others, and care for both others and self (Bajovic & Elliott, 2011). Within the context of schools, Noddings (2006) argues that the teachers (and any other caring adults in the school system) must model how to show care for others, and provide opportunities for discourse among students in order to reach common understandings about caring for others. She calls for the “confirmation of the good in others” (p. 123) and stresses the importance of developing and sustaining relationships among children, rather than focusing solely on developing traits of individualism. Weissbourd (2003) posits:

Educators influence students' moral development not simply by being good role models-important as that is-but also by what they bring to their relationships with students day to day: their ability to appreciate students' perspectives and to disentangle them from their own, their ability to admit and learn from moral error, their moral energy and idealism, their generosity, and their ability to help students develop moral thinking. (p. 11)

According to Lickona (2008), teachers are responsible for creating a moral community, in which students learn to respect and care about each other so everyone feels valued within the group. Narvaez (2002) suggests that to become people of good character, students need opportunities to develop their intuitions in well-structured environments that provide guidance for developing proper ethical skills. Thus, teachers need professional development in explicit instruction related to the theory behind the skills they are teaching. This also implies that the need more opportunities through professional development to learn about video games, and to directly experience video game playing in order to perceive the possible applications of such tools in the classrooms. It is also important for teachers to be informed about possible effects of video games in order to avoid the influences on media moral panics related to the portrayal of violent video games in the media (Kirkland, 2009; Schrader, Zheng, & Young, 2006).

An important skill that children need to develop through critical media literacy and character education is the ability to understand the relationship among the common good, the good of others, and the individual good. Bajovic and Elliott (2011) propose the strategy they call interrelated goods that may prove effective in teaching children those skills. With this strategy, the teacher offers different moral dilemmas using case studies or role playing that could be based on their personal conflicts in or out of school. Then the teacher can ask students to discuss their own good based on their personal needs and aspirations, and the common good based on the needs of the group or society (Luke, 2002; Paris & Combs, 2006; Rath, 2001; Tuana, 2007). Like the rotation of a kaleidoscope, teachers should ensure that each perspective receives a complete and adequate description. This type of discussion may help students to realize that there are

instances when the common good or the good of others is more important than the individual good. In this way, they are more likely to develop sensitivity to the views, experiences, and values of others. Bajovic and Elliott also state that everyday social and educational experiences contain moral dimensions, and argue that moral literacy is inherently embedded in critical literacy. Thus, both moral literacy and critical media literacy should involve the analysis and critique of the media messages as well as underlying issues of moral values and beliefs.

They indicate that:

Students should be directed in discussion of issues such as fairness, tolerance, compassion and integrity in what they read, write, or watch. It is imperative that children come to understand those different moral values and beliefs held by different cultural groups. (p. 31)

There should be no desire to stop children from playing video games, but opportunities can be created in and out of school to enhance their ability to become tolerant and compassionate in helping others and themselves.

### **Attitudes Towards Real Violence**

Attitudes result from complex and selective evaluation processes, based on an individual's experience with, associated cognitions about, and affective reactions to a situation or object (Dowler, 2003; Fazio, & Olson, 2003). The formation of attitudes towards violence can be influenced by many factors including parental attitudes, social class, peer influence, and the amount of exposure to violence in real life and through the media (Barkin, Kreiter, & DuRant, 2001; Funk et al., 2003; Vieira & Krcmar, 2011). According to Funk (2002), the development of attitudes towards violence is influenced



by many factors including exposure to family and community violence, as well as exposure to violence in the media. Eron (2001) posits that playing violent video games may encourage cognitive rehearsal of aggressive acts that may further strengthen proviolent attitudes and eventually increased aggressive behaviours in real life. Many researchers have expressed concern that the violence to which children are exposed in violent video games could transfer into the real world in the form of proviolent attitudes (Huesmann, et al., 2003; Funk et al., 2003; Mahood & Yao, 2006). Those proviolent attitudes may result in aggressive thoughts, desensitization to violence, and decreased empathy (Anderson & Bushman, 2001; Anderson et al., 2007; Carnagey & Anderson, 2005; Funk et al., 2004). Several researchers have reported that stronger proviolent attitudes in children and adolescents are associated with increased aggressive behaviour (Funk et al., 2003; Huesmann et al., 2003; Mahood & Yao, 2006).

The results of the present study slightly differ from previous research findings. The overall results for all participants ( $N=107$ ), revealed that the mean of scores on ATV  $M=22.72$  ( $SD=5.18$ ). The scores on ATV greater than one standard deviation were considered to be a high score (ATV scores greater than 27.90) predicting higher proviolent attitudes in real life. This means that participants with scores higher than 27.90 were considered to demonstrate proviolent attitudes in real life. There were 89/107 (83%) participants who did not obtain scores higher than 27.90, thus, these scores did not show proviolent attitudes in real life. There were only 18/107 (17%) participants who scored higher than 27.9, thus, predicting more proviolent attitudes in real life. The participants in the group who scored more than the threshold were 16 boys (violent video game playing group) and two girls (nonviolent video game playing group).

In determining the association between the amounts of time playing violent video games and the scores on ATV test for the violent video game playing group, an analyses of bivariate correlation was performed. The results revealed that adolescents in a violent video game playing group who declared playing from one to three or more hours a day did not significantly differ in attitudes towards violence based on the amount of hours of violent video game playing. Thus, in this study, the amount of time playing violent video games was not associated with the attitudes towards real violence. However, the difference between overall scores on the ATV test between the violent video game playing group and the nonviolent video game playing group was statistically significant. The mean score on the ATV test for the violent video game playing group was ( $M=25.16$ ,  $SD=6.4$ ,  $N=45$ ), and for the nonviolent video gaming group was ( $M=21.55$ ,  $SD=3.7$ ,  $N=51$ ). An independent samples T-test for the violent video game playing group and nonviolent game playing group for ATV scores revealed a statistically significant difference  $t(96)=3.40$ ,  $p=.001$ , ( $p<.005$ ) Based on the results, participants in the violent video game playing group scored higher on the ATV suggesting that playing violent video games is a significant predictor of proviolent attitudes in real life. There was no significant difference found on the ATV scores between boys and girls.

Although these results may suggest that participants who played violent video games may show stronger proviolent attitudes in real life, it was not necessarily the case in this study. According to the mean scores of the violent video game playing group on the ATV test ( $M=25.16$  on ATV test), most participants in the violent video game playing group scored within the range (less than 27.9) that did not indicate proviolence attitudes in real life. However, the results on Binary Logistic Regression demonstrated that ATV

scores ( $\text{Wald}(1) = 6.404, p = .011$ ) significantly predicted whether or not participants were violent video game players. This particular finding is in part inconclusive and calls for further investigation. Even though only a small percentage (17%) of all participants in this study scored higher on the test of proviolent attitudes in real life, this finding should not be ignored. There were 18 participants who scored higher than 27.9 indicating proviolence attitudes in real life. Among those participants, there were 16 boys and two girls. It is interesting however, that those 16 boys who scored higher than 27.9 on the ATV test were all from the violent video game playing group. It is evident that further studies are needed to investigate the possible relation between attitudes towards real violence and violent video game playing. It can be speculated here that similar research on a larger sample may produce different results and further clarify the present research findings.

### **Limitations of the Study**

Correlational studies usually suggest that there is a relationship between two variables; they cannot prove that one variable causes a change in another variable. In other words, correlation does not equal causation. Other variables may also play a role, including social relationships, cognitive abilities, personality, socioeconomic status, and a myriad of other factors (Creswell, 2003, 2008; Creswell & Plano Clark, 2007). One of the limitations of this study was that it did not investigate causation and did not take into account those other variables. Another limitation is derived from the small participant sample. Data in this study were collected on a small sample of adolescents in seven schools in Ontario and should not be generalized to adolescents in other schools from other regions (Kerlinger & Lee, 2000).

A limitation of this study was also in self-reporting data. Self-reported data rely on adolescents' perceptions that can affect the outcomes of survey and questionnaire results. Some adolescents may also try to please the researcher, lie to make themselves look better, or have mistaken memories (Creswell, 2008; Creswell & Plano Clark, 2007). This study used self-reported instruments and was limited to the accuracy of the participants' responses (Kerlinger & Lee, 2000). One of the research limitations was in the interview procedure. The interviews relied on the participants' willingness to give accurate and complete answers. The participants may sometimes provide inaccurate responses due to feelings of embarrassment, inadequacy, lack of knowledge on the topic, nervousness, or confusion (Breakwell, Hammond, & Fife-Schaw 1995). And finally, the researcher's lens was the only one analyzing these data.

### **Future Research**

Future research can expand these findings in a variety of ways. One direction for future research may involve investigation of how other individual variables such as personality, socioeconomic status, and family situation, may mitigate the effects of violent video game playing on real aggression. Another way to extend present findings is to utilize a longitudinal design to measure possible violent video game effects. It is possible that children are more affected with violent video game playing over time. In clarifying present findings it would also help to investigate the possible reasons for lower scores on sociomoral maturity test. And finally, this research can be extended in measuring the effects of different programs and strategies utilized through character education to remediate moral developmental delay in children. As Gibbs (2003) states, through adequate programs created to help children, it is possible to stimulate more

mature understanding with respect to values, such as helping others, peer or family relationships, resisting drugs, and preventing suicide, or saving a life. It would be also beneficial for future research to further explore teachers and parents' levels of awareness about violent video games. This study's field notes indicated that parents and teachers need additional knowledge about violent video game content and the nature of the violence presented in the games.

### **Conclusion**

Strong emphasis from previous research was placed on the potential negative effects that violent video game playing may have on children (Funk et al. 2003; Huesmann et al., 2003; Mahood & Yao, 2006). I believe that emphasis should be placed more in helping our children in understanding the meanings behind the violent video game messages through the collaboration of educators, parents, and students in and out of school. As an educator, I strongly believe that positive guidance and help in deconstructing the real meaning of messages delivered through different forms of media, places students on the path to becoming positive, democratic citizens of the world.

I believe that becoming video game literate is essential for all of us who are involved in the upbringing of children and young adults. In an era when young generations are digital friendly and video game savvy, I believe the role of video gaming in children and adolescents' cognitive development must not be overlooked. In educating today's generation of learners, we all need to understand the new media environment into which they were born. To effectively communicate with today's learners, pre-digital educators whom Prensky (2001) refers to as digital immigrants, need to become more aware and more knowledgeable of media literacy. Further work on developing adequate

character education programs and critical media programs is necessary to develop this awareness and to enhance the ability of our children to develop altruistic, caring, and democratic life perspectives.

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## Appendix A

### Video Game Genre Taxonomy

GENRE	DESCRIPTION	VIDEO GAMES
Shooter	Classic shooter game that requires the player to blow away enemies or objects in order to survive and continue to the next level of the game. In these video games, the player is required to move around the screen and to shoot in whatever direction necessary to keep from being destroyed (Scott, 2007).	Space Invaders, Defender, Tempest, Grand Theft Auto
First-Person-Shooter	The player controls an environment from a first-person perspective, and is required to shoot everyone and blows everything whenever possible (Ernest & Rollings, 2006).	Doom, Descent, Marathon, Halo, Quake, Call of Duty series.
Adventure	The progression is based on puzzles and ability keys as the primary form of progression. An ability key gives the player an ability which allows them to overcome a specific type of obstacle and therefore access to the new areas (Scott, 2007).	Lucas Arts, Cyan, Gabriel Knight, Indiana Jones, The Legend of Zelda, and Monkey Island
Platform	Platform genre video games are identified by navigating environments that require timing and jumping in order to reach a destination while avoiding and/or disposing of enemies (Ernest & Rollings, 2006).	Pac-Man World, Spyro the Dragon, Bubble Bobble, Donkey Kong, Super Mario Bros.










GENRE	DESCRIPTION	VIDEO GAMES
Role - Playing	A special type of adventure game that usually incorporate three major elements: a specific quest; a process for evolving a character through experience to improve his/her ability to handle deadlier foes, and the careful acquisition and management if inventory items for the quest (Ernest & Rollings, 2006).	Final Fantasy, Shadows of Darkens, Dragon Warrior
Puzzle	The player is required to solve the puzzle. Players usually need to fit different sized blocks into a specific space, do things in a specific order, destroy objects in an order, stack object in an order, or match objects by colour (Ernest & Rollings, 2006).	Tetris, Intelligent Qube, Puzzle Bobble, Puyo Puyo, Devil Dice, and Wetrix.
Simulations	Simulation genre video games are designed to accurately re-create a real life experience. Online simulation games allow a person to inspire and be inspired by other players' creations or test strategies against them (Ernest & Rollings, 2006).	The SimCity, Grand Tursimo, Spore, The Sims

Dance/ Rhythm	Players are challenged to follow sequences of movement to a specific music tune. Some games require the player to input rhythms by stepping with their feet on a dance pad, or using a device similar to a specific musical instrument, like a guitar or drum set (Frink, 2009).	Guitar Hero, Rock Band, Sing Star.
Survival/ Horror	Players need to survive or overcome the environment that includes fantastic or supernatural elements that are very frightening and often disturbing. Many of these titles are rated mature because they are not intended for younger audiences and often include disturbing graphic scenes (Ernest & Rollings, 2006).	Resident Evil, Silent Hill, Fatal Frame, Doom.
Fighting	One player plays/fights against another player and it involves one triumphing over the other. Many of these games include a single player mode, but the real draw to this genre is the ability to demonstrate one's gaming prowess against a friend (Ernest, 2006).	Street Fighter, Soul Calibur, Mortal Kombat, Tekken, Dead or Alive.

## Appendix B

### Video Game Ratings According to ESRB

Rating	Description
<p>EARLY CHILDHOOD</p> 	<p>Titles rated EC - Early Childhood have content that may be suitable for ages 3 and older.</p> <p>Contains no material that parents would find inappropriate.</p>
<p>EVERYONE</p> 	<p>Titles rated E - Everyone have content that may be suitable for persons ages 6 and older. Titles in this category may contain minimal violence, some comic mischief and/or mild language</p>
<p>EVERYONE 10+</p> 	<p>Titles rated E10+ (Everyone 10 and older) have content that may be suitable for persons ages 10 and older. Titles in this category may contain more cartoon, fantasy or mild violence, mild language, and/or minimal suggestive themes.</p>
<p>TEEN</p> 	<p>Titles rated T - Teen have content that may be suitable for ages 13 and older. Titles in this category may contain violence, suggestive themes, crude humor, minimal blood, simulated gambling, and strong language.</p>

<p>MATURE</p> 	<p>Titles rated M - Mature have content that may be suitable for persons 17 years and older.</p> <p>Titles in this category may contain intense violence, blood and gore, sexual content, and/or strong language</p>
Rating	Description
<p>ADULTS ONLY</p> 	<p>Titles rated AO - Adults Only have content that should only be played by persons 18 years and older. Titles in this category may include prolonged scenes of intense violence and/or graphic sexual content and nudity.</p>
<p>RATING PENDING</p> 	<p>Titles listed as RP - Rating Pending have been submitted to the ESRB and are awaiting final rating. (This symbol appears only in advertising prior to a game's release.)</p>

## Appendix C

### Self-Reporting Questionnaire

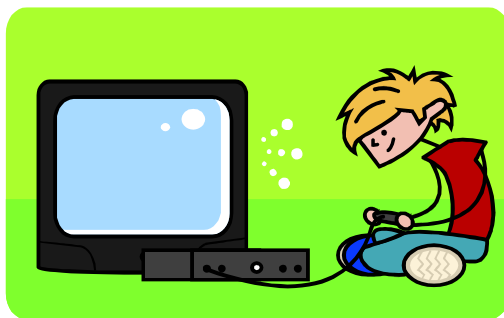


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### Questionnaire

Name:	Date:
Male: ☺      Female: ☺	School:
	Age:

*The information you provide on this questionnaire will be kept confidential*

1. Do you consider yourself a good student?      YES                      NO

2. What do you usually do for fun? (Please circle often, rarely or never for every item below)

a) <i>Play sports</i>	Often	Rarely	Never
b) Hang out with my friends	Often	Rarely	Never
c) Read a good book/magazine/comics	Often	Rarely	Never
d) Use Facebook / MSN	Often	Rarely	Never
e) <i>Listen to music</i>	Often	Rarely	Never
f) Watch television/movies	Often	Rarely	Never

3. Do you play video games?                      YES                      NO

4. How often do you play video games? (Please place X in the chart that matches with your time spent playing video games)

Time	Less than one hour	One hour	Two hours	Three or more hours
Every day				
Every other day				
A few times per week				
A few times per month				

5. Which of the following video games do you play? (Please circle often, rarely or never for every question below)

a) Call of Duty: Modern Warfare	Often	Rarely	Never
b) FIFA 10	Often	Rarely	Never
c) NHL series	Often	Rarely	Never
d) Need for Speed	Often	Rarely	Never
e) Super Mario Galaxy 2	Often	Rarely	Never
f) Rock Band	Often	Rarely	Never
g) Grand Theft Auto: San Andreas	Often	Rarely	Never
h) Sims	Often	Rarely	Never
i) Prince of Persia: The Forgotten Sands	Often	Rarely	Never
j) Monster Hunter Tri	Often	Rarely	Never
k) Madden <i>NFL</i>	Often	Rarely	Never
l) World of Warcraft	Often	Rarely	Never

f) Others, please specify \_\_\_\_\_  
 \_\_\_\_\_

6. What are your two favourite video games?

1. \_\_\_\_\_  
 2. \_\_\_\_\_

7. I play these video games because... (Please circle agree, disagree or not sure for every item below)

a) It is fun	Agree	Disagree	Not Sure
b) It is exciting	Agree	Disagree	Not Sure
c) It is something to do when I am bored	Agree	Disagree	Not Sure
d) I enjoy competing	Agree	Disagree	Not Sure
e) I like the challenge of figuring it out	Agree	Disagree	Not Sure
f) It helps me to relax	Agree	Disagree	Not Sure
g) I like using guns and weapons	Agree	Disagree	Not Sure
h) It helps me vent my anger	Agree	Disagree	Not Sure

8. Which of the following video game genres you consider the most enjoyable? (*Please circle agree, disagree or not sure for every item below*)

a) Action/Adventure	Agree	Disagree	Not Sure
b) Role-Playing Games	Agree	Disagree	Not Sure
c) Strategy/Tactics	Agree	Disagree	Not Sure
d) First-Person Shooter	Agree	Disagree	Not Sure
e) Sports	Agree	Disagree	Not Sure
f) Horror	Agree	Disagree	Not Sure
g) Dance/Rhythm	Agree	Disagree	Not Sure
h) Real Life Simulations	Agree	Disagree	Not Sure
Fighting	Agree	Disagree	Not Sure

9. Do you consider yourself a good video game player?    Yes            No

10. In your opinion, what makes a good video game player?



Please Describe: \_\_\_\_\_

11. Who are your favourite video game characters? \_\_\_\_\_

12. Do you sometimes wish you were like one of your favourite video game characters?  
YES NO

13. Which of the following personality traits do you admire the most in your favorite video game characters?

a) Smart	Agree	Disagree	Not Sure
b) Successful	Agree	Disagree	Not Sure
c) Attractive	Agree	Disagree	Not Sure
d) Funny	Agree	Disagree	Not Sure
e) Dominant	Agree	Disagree	Not Sure
f) Aggressive	Agree	Disagree	Not Sure
g) Male	Agree	Disagree	Not Sure
h) Female	Agree	Disagree	Not Sure
i) Brave/Courageous	Agree	Disagree	Not Sure
j) Persistent/Never gives up	Agree	Disagree	Not Sure
k) Others _____			

14. Have you ever played any violent video games? YES NO

15. Do you enjoy playing violent video games? YES NO

16. What elements in the games you play make them so violent? (Please circle agree, disagree or not sure for every item below)

a) Realistic scenes	Agree	Disagree	Not Sure
b) Storyline	Agree	Disagree	Not Sure
c) Killing other people	Agree	Disagree	Not Sure
d) Destroying property	Agree	Disagree	Not Sure
e) Vulgar language and obscenities	Agree	Disagree	Not Sure
f) Bloody Scenes	Agree	Disagree	Not Sure
g) Other (Please Specify)	<hr/>		

17. Are there some elements of violence in the video games that you do not like at all?

YES      NO

Please Describe: 

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18. How does playing violent video game affect your mood? ((Please circle agree, disagree or not sure for every item below)

a) It makes me feel excited	Agree	Disagree	Not Sure
b) It makes me feel competitive	Agree	Disagree	Not Sure
c) It makes me feel angry	Agree	Disagree	Not Sure
d) It makes me feel aggressive	Agree	Disagree	Not Sure
e) It makes me feel relaxed	Agree	Disagree	Not Sure
f) It doesn't affect my mood	Agree	Disagree	Not Sure

Other (Please Specify)\_\_\_\_\_

19. Have you ever heard through the media about any real life situations that may have been influenced by violent video games?      YES      NO

Please Explain:\_\_\_\_\_

20. Have you ever personally been involved in a real life situation that may have been influenced by violent video games?      YES      NO

Please Explain:\_\_\_\_\_

21. Do you believe that some people can become more aggressive after they play violent video games?      YES      NO

Please Explain:\_\_\_\_\_

## **Appendix D**

### **The Sociomoral Reflection Measure-Short Form (SRM-SF)**

1. Think about when you've made a promise to a friend of yours. How important is it for people to keep promises, if they can, to friends? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. What about keeping a promise to anyone? How important is it for people to keep promises, if they can, even to someone they hardly know? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. What about keeping a promise to a child? How important is it for parents to keep their promises to their children? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. In general, how important is it for people to tell the truth? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

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5. Think about when you've helped your mother or father. How important is it for children to help their parents? Circle one:

very important      important      not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

---



---

6. Let's say a friend of yours needs help and may even die, and you're the only person who can save him or her. How important is it for a person to save the life of a friend? Circle one:

very important      important      not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

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7. What about saving the life of anyone? How important is it for a person (without losing his or her own life) to save the life of a stranger? Circle one:

very important      important      not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. How important is it for a person to live even if that person doesn't want to? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. How important is it for people not to take things that belong to other people? Circle

one: very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. How important is it for people to obey the law? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. How important is it for judges to send people who break the law to jail? Circle one:

very important    important    not important

WHY IS THAT VERY IMPORTANT / IMPORTANT / NOT IMPORTANT

(WHICHEVER ONE YOU CIRCLED)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **Appendix E**

**Attitudes Towards Violence Scale (Funk et al., 1993).**

Instructions: The following items are designed to measure attitudes towards violence. Please be honest in responding. The answers that you give will not be used against you. Please circle only one response that best corresponds with your attitudes.

1. I could see myself committing a violent crime in 5 years.

Agree                  Disagree          Not Sure

2. I could see myself joining a gang.

Agree                  Disagree          Not Sure

3. It's okay to use violence to get what you want.

Agree                  Disagree          Not Sure

4. I try to stay away from places where violence is likely.

Agree                  Disagree          Not Sure

5. People who use violence get respect.

Agree                  Disagree          Not Sure

6. Lots of people are out to get you.

Agree                  Disagree          Not Sure

7. Carrying a gun or a knife would help me feel safer.

Agree                  Disagree          Not Sure

8. If a person hits you, you should hit them back.

Agree                  Disagree          Not Sure

9. It's okay to beat up a person for badmouthing me or my family.

Agree                  Disagree          Not Sure

10. It's okay to carry a gun or a knife if you live in a rough neighborhood.

Agree                  Disagree          Not Sure



11. It's okay to do whatever it takes to protect myself.

Agree                  Disagree                  Not Sure

12. It's good to have a gun.

Agree                  Disagree                  Not Sure

13. Parents should tell their children to use violence if necessary.

Agree                  Disagree                  Not Sure

14. If someone tries to start a fight with you, you should walk away.

Agree                  Disagree                  Not Sure

15. I'm afraid of getting hurt by violence.

Agree                  Disagree                  Not Sure

## **Appendix F**

### **Informal Interview Protocol**

The interviews will be informal and may vary slightly from participant to participant depending on the answers provided in self-reporting questionnaire. Although a variety of prompts may be necessary, the general protocol for the interviews is as follows:

Interview:

What are your favourite video games?

Which ones you like the best?

Please describe for me the rules in these games.

(Probe for great detail here. Suggested prompts are “If I were going to play the game tell me how to do it.”)

Why do you like these ones?

(Prompt: “What makes this game better than others?” “Why is it your favourite?”)

How often do you play video games?

Who do you play it with?

Who buys games for you?

What games do you rent most often?

Do you play violent video games?

How do you feel when you play violent video games? (Prompt: relaxed, excited, playing for fun, competitive, angry, frustrated when losing, more aggressive).

How does it make you feel when you have to kill or do the harm to another person in the game in order to gain points?

How do you feel after you have finished playing? (same prompt as above).

Do you believe that harming another person(s) in an video game is justifiable?

Do you believe that being aggressive in real life is alright under certain circumstances?

Please describe those circumstances.

If you see somebody physically harming one of your friends, what would you do?

If you see somebody physically harming a person you do not know, what would you do?

If you see somebody physically harming a person that you do not like, what would you do?

(Prompt: a case of bullying in your school backyard).

Do you believe that media violence (e.g. violence in video games) can make children and youth become more aggressive in real life?

If you could create an video game that you and your friends would enjoy, what components would you include?

## **Appendix G**

## Research Ethics Board Clearance Letter



Research Ethics Board Tel: 905-688-5550 ext. 3035 Email: reb@brocku.ca

### Certificate of Ethics Clearance for Human Participant Research Brock University

DATE: 8/27/2010

PRINCIPAL INVESTIGATOR: ELLIOTT, Anne - Graduate & Undergraduate

FILE: 10-022 - ELLIOTT

TYPE: Ph. D. STUDENT: Mirjana Bajovic

SUPERVISOR: Anne Elliott

TITLE: Violent video game playing, moral reasoning, and attitudes towards real violence in adolescents: Is there a connection?

ETHICS CLEARANCE GRANTED

Type of Clearance: NEW Expiry Date: 8/31/2011

*The Brock University Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from 8/27/2010 to 8/31/2011.*

*The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before 8/31/2011. Continued clearance is contingent on timely submission of reports. To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at <http://www.brocku.ca/research/policies-and-forms/research-forms>. In addition, throughout your research, you must report promptly to the REB: a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study; b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants; c) New information that may adversely affect the safety of the participants or the conduct of the study; d) Any changes in your source of funding or new funding to a previously unfunded project.*

*We wish you success with your research.*

Approved:

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*Michelle McGinn, Chair  
Research Ethics Board (REB)*

*Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable. If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.*