

The Effect of Video Games on the Perception of Aggression

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Abstract

The relationship between video game violence and aggression has frequently been studied in order to assess whether or not video games that portray violence lead the individuals playing them to become more aggressive (Anderson, Gentile & Buckley, 2007). However, something that has seldom been explored is whether violent video game play affects perceived aggression (i.e., whether those individuals who engage in violent game play perceive situations involving obvious aggression differently). Likewise, there has been very little research assessing differences in the perception of offline versus online gaming and gender differences in perceived aggression. In the present study differences in the perception of males versus females playing online versus offline gaming were explored. One hundred and twenty-nine participants completed a survey that required them to indicate the types of video games they play and how many hours per week they play these games. Participants read 1 of 8 possible scenarios (determined randomly) and answered questions regarding their perception of aggression. A number of significant relationships were found indicating that those who play violent video games perceive aggression as less serious. There were also differences in perception of aggression according to the gender of the perpetrator and the gender of the participant. The implications of such results could be used to implement stricter age restrictions on violent video games, as well as provide a pathway to assess gender differences in cyberbullying.

The Effect of Video Games on the Perception of Aggression

In 1977 Anderson found that children who observe more aggressive or violent behavior on television are more likely to display aggression in real life, a finding that is still observed today (Bushman & Huesmann, 2006). The reason we see such a powerful effect from the media is multifaceted. Children's minds are extremely plastic and it is at this early stage in life that most concepts about the world are formed (Healy, 1999). It is very easy to manipulate and change children's behaviors, simply by showing them and telling them "this is the way to be" (Gardner, 2011). Because social media is so intertwined with daily life, when children (ages 8-18) view things on television or anywhere within the realm of social media, they find it difficult to distinguish what is real from what is not (Griffiths, 1999), often incorporating aspects of the media into their own lives. This effect was seen in Gardner's (2011) study as child body size estimation was directly affected by what they viewed in the media. The reason for this inability to distinguish fact from fiction is because children have fewer fully formed schemas and encoded cognitions. The human brain is very plastic in the first 20 years of life to allow for learning and memory storage (Lerner, Boyd, & Du, 2010). This is crucial for proper development. Therefore children can be more easily influenced, with less interference from preexisting schemas and cognitions, as they may yet to have formed (Bushman & Huesmann, 2006).

An area within the realm of child cognition that has not been explored sufficiently is the effect video games can have on a child's mind, or how the child's perceptions can be influenced by games. Specifically, with the rise of violent video games (Anderson, Gentile & Buckley, 2007) it is important to determine how children, or anyone involved

in gaming perceive aggression after excessive play of violent games, as we are unsure of the level of impact that video games can have on the mind.

Evolution of Media Violence

The problem of media influence further escalates when media characters display or endorse such things as violence (Huesmann, 1982). Children not only see the actions of the character(s) being violent, but also the rewards characters receive for being violent/aggressive. This in turn influences children's perceptions (Silvern & Williamson, 1987). This influence is even more intense when traces of observational learning are present (Huesmann, 1982). Silvern and Williamson (1987) found that children who viewed violent situations on television and in video games experienced a higher physiological arousal and responded more aggressively in a free-play situation. Similar findings by Eron, Huesmann, Lefkowitz, and Walder (1972) showed how prolonged observation of violence led to a higher probability that viewers would display violence in their lives. In other words, there is a positive linear relationship between the amount of violence viewed on television and/or video games and the amount of aggressive behavior exhibited by the viewer. Additionally, an increase in amount of violence viewed has been positively correlated with the type of violence or aggression (Paik & Comstock, 1994). Though video games date back as far as the late 1940s, they did not hit the mainstream until the late 1970s and early 1980s, when arcade games and home computer games were made available to the public (Smith, Lachlan, & Tamborini, 2003). Since then video games have been created that depict violence, and the best-selling games are generally the ones that revolve around or have a constant theme of violence, such as First Person Shooters, Role Playing and Vehicle Operation games (Smith et al., 2003). Recent studies

have shown that individuals' video game use is related to and can be used as a valid predictor of their actual behavior (Janssen, Boyce, & Pickett, 2012). As previously mentioned, exposure to media violence on television and video games was positively correlated to heightened arousal (i.e., increased heart rate, blood pressure, and skin conductance), however it was also found that this increased arousal led to subsequent violent ideas, aggressive behavior, and increased anger. Furthermore, a negative effect was found in subsequent benevolent behavior (Bushman & Huesmann, 2006). In other words, children were reported as being less kind and helpful across various life situations.

The reason children may respond so significantly to violent depictions is because of reinforcement (Bandura, 2006). Individuals acting aggressively on television or in video games are often rewarded directly for their behavior; whether it is with fame for defeating the "bad guy" or with physical rewards such as new levels, sound effects, or points (Dill & Dill, 1999). Pairing violent behavior with rewards shows children that they can obtain what they want by acting aggressive (Dill & Dill, 1999). This is very problematic as it leads to decreased empathy for the victims of the aggression (Buchman & Funk, 1996).

Compounding the problem is the fact that the technological world is constantly changing to fit the needs of its customers. Advancements in gaming have coincided with use of the internet, with gaming advancing to include social media. This connection is made relevant when one considers multiplayer gaming. Multiplayer gaming refers to a method of video game play in which two or more players are playing a single game simultaneously, either on a single console or over a wireless network, and there is communication between the players in the game (Puskala, 2005). However, to play a

multiplayer game, people no longer need to invite their friends over, ask them to bring the controllers to their gaming system, hook them up, and play. Online gaming has made it such that people are able to load a game, log into their online account, and play against hundreds or even thousands of others all over the world. With the ability to play with or against others in online games individuals can also connect to and chat with people via text messaging or verbal communication (using headsets). With this great power comes great responsibility, and not everyone can handle such responsibility. The intensity of online gaming can often get the best of people, especially in games that are goal oriented (where one has to strive to achieve a high score) possibly causing people to become aggressive (Mehroof, 2010). It is hard to become physically aggressive while online gaming as competitors may be miles apart; however, it is very easy to become verbally aggressive.

Video Game Violence

It is believed that the influence television violence has on behavior is very similar to the influence that video game violence has on behavior (Silvern & Williamson, 1987). It is also believed that like television, the influence of video game play is even more prevalent and much stronger in children (Bushman & Huesmann, 2006). Children are easily influenced by behaviors they see depicted on television, and the level of this influence may be determined by the character to which the children feel they most relate to on certain programs they view (Griffiths, 1999). For example, if a young child watches a show with some aggressive characters and some non-aggressive characters, whether the child becomes aggressive may be determined by the character to which the child relates (i.e., an aggressive or a non-aggressive character). In contrast, if the child watches a show

depicting only violent/aggressive characters, the child will likely relate to an aggressive character and consequently show signs of aggression. It is believed that this effect can be amplified in violent video games (Mehroof, 2010). That is, children who play violent games show an increased feeling of relatedness to the characters in the game, specifically the main character (Griffiths, 1999). Unlike in television shows where the child has a choice of characters to whom they could relate, in the majority of violent video games the child is forced to be a certain character and is made to commit aggressive acts in their role as that character. The lack of choice, plus the sense of feeling the child actually is that character can increase aggressive behavior in real life (Mehroof, 2010).

However, not all types of video games elicit this increased arousal response. Dominick (1984) and Loftus (1983) state that most video games on the market do display some type of violence, but this research is dated. The gaming industry has expanded enormously, especially in the past decade, and there are now many different types of video games (Willoughby, Adachi, & Good, 2012). A survey by Bowman and Rotter (1983) found that approximately 85% of the games they examined involved the characters engaging in some type of simulated violence or destruction, while 15% did not. More recently, Provenzo (1991) found that approximately 85% of the leading Nintendo games at the time portrayed violence involving victims and perpetrators. Therefore it cannot be simply stated all games are alike. In that case, a possible hypothesis could be that not all gamers are subject to the increased level of arousal that those playing violent games experience, as there are different types of gamers (Rotter, 1983). Thus, the nonviolent gamers may perceive situations, specifically violent ones, different than those playing violent video games.

Although there are a number of video games that do not endorse violence the majority of them do, the popularity of games increases as the games become more violent (Dill & Dill, 1999). They also found that as video games became more lifelike they became more popular. This is problematic because as the games become more realistic, people, especially children, become more immersed in them and may feel as though they are actually taking part in the events of the game (Carnagey, Anderson, & Bushman, 2007). The fact that violent video games are the most popular puts children at an increased risk of becoming immersed in a world of violence.

Cyberbullying

The amount of violence in video games is much more severe than that seen on television (Dominick, 1984; Smith et al., 2003). In video games there are no commercial breaks or scene switches, and child can play the game repeatedly, unlike on television shows where the violent scenes are spread out and once they occur, they are not repeated. Therefore, it is logical that if we can apply the conclusion that depictions of television aggression can influence behavior, we should see the same with video games. Where before there was little research done in the field, many researchers are now beginning to see how online aggression in social media can be linked to experiences in online game play, and how these experiences may be the contributing factor in advocating online verbal aggression (Kim, Namkoong, Ku, & Kim, 2008). Even though it is a fairly new concept, several studies have been conducted with regards to the relationship between online and real life aggression (Coyne & Archer, 2005; Janssen et al., 2012).

Related to the concept of how real life aggression can be influenced by online aggression is the concept of how it can transfer back to the technological world; in other

words “cyberbullying”. Cyberbullying is defined as the use of the internet to harm other people in a deliberate and hostile manner (Alvarez, 2012). The prevalence of this type of online aggression is somewhat uncertain as online communication is a relatively new phenomenon. Also, the amount and variety of online communications are nearly unfathomable. However Schoffstall and Cohen (2011) describe findings that show how even though individuals may not show any forms of significant traditional real life aggression, they still report being aggressive in online situations. It has been suggested that this may be related to cyberbullying in the sense that individuals can feel a sense of power and cause emotional distress in others while remaining anonymous (Dooley, Pyzalski, & Cross, 2009).

The literature seems to suggest that experiencing anything violent on a regular basis can increase the likelihood of someone displaying more aggressive behaviors as well as experiencing heightened levels of arousal that become the new norm (Widom, 1989). It also seems that individuals do not have to experience it firsthand. Simply observing others acting in violent ways can cause people to experience heightened arousal and to be personally aggressive in daily life. The best explanation for this may be some combination of operant conditioning, where one would feel rewarded for displaying aggression (as a character does on any television show) (Griffiths, 1999), and vicarious learning, where the aggression being viewed can later serve as a spark for the child to exhibit various forms of it (Paik & Comstock, 1994). A logical hypothesis could be that this effect of operant conditioning would be worsened among children who play violent video games. As previously mentioned, children are given the active role of the aggressor in video games and therefore are directly experiencing the reward for being aggressive

(Griffiths, 1999). It would seem that this would have a much stronger effect on their attitudes, beliefs and even perceptions of violence. To date this possibility has not been explored.

A major question that must be answered in relation to cyberbullying is who is to blame for the actual act itself? Do we blame the media for allowing us to become connected with others on so many different levels? Do we blame gaming companies for promoting violence? Do we blame the aggressors for being unable to handle the responsibility entrusted to them? Or, do we blame the victims for engaging in these online situations when they may be unable to handle the competitiveness of online gaming? Placing blame on the media and/or gaming companies is impractical and useless as it is almost impossible to escape social media in today's society. In response, some research suggests that blame should be placed on the offender/aggressor (Kim et al., 2008). When it comes to online video games all players are expected to be able to act responsibly and control their aggression, hence cyberbullying may simply be a result of irresponsible individuals. Therefore placing blame on the victims would be incorrect as the aggressors should be expected to be in control of their behaviour (Schoffstall & Cohen, 2011). However, a lot of people choose to believe in The Just World Hypothesis, which shifts the blame from the offender to the victim (Brehm, Kassin, Fein & Burke, 2008). The Just World Hypothesis states that in a Just World, people like to believe that others will get what they truly deserve and that bad things should not and will not happen to good people (Brehm et al., 2008). Although this may be what most people perceive, it does not explain why some individuals aggress and others do not in online games. Is it that they do not perceive it as aggression due to the influence of the type of game they are

playing? It has been shown that individuals who play more aggressive games have an overall heightened level of physiological arousal and experience more aggression-related thoughts (Anderson, 2001; Bushman & Huesmann, 2006). Based on this finding, it could be hypothesized that individuals who engage in excessive violent game play may experience a heightened level of arousal as the new norm and may experience more aggression-related thoughts. Thus these aggressors may be the ones who place more blame on the victim as a way to remove blame from themselves.

The Present Study

The purpose of this study is to add to the research concerning aggression in online gaming. Multiplayer video games have only been around for the past 20 years, and online multiplayer games have only been around for a little more than a decade. Consequently, past research has mostly focused on the effects of television violence (Anderson, 1977; Coyne & Archer, 2005; Dohnt & Tiggemann, 2006). Only recently have studies examined the effects of video game violence on behavior (Anderson, 2001; Janssen, 2012), however no study completed to date has examined the perceptions of aggression in individuals who play different types of video games. Furthermore there has been no research on whether or not there are any gender differences in these perceptions. Therefore, an exploration into the differences of perceptions of aggression between people who play “non-violent” versus “violent” video games would be beneficial in examining how much perceptions are affected by different games, if there are any gender differences, and in assessing whether the perceptions of people who play violent video games differed from those who play non-violent games. Video games were classified as violent or nonviolent based on previous research (Mahood, 2009). To assess differences

in perceptions of aggression, attitudes regarding online and offline verbal aggression were explored. A number of hypotheses were formulated and they include:

1. Possible gender differences may exist in perceptions of video game aggression. There could be differences according to gender of the aggressor, gender of the victim, gender of the participant, or some combination of these. Differences according to gender of each were expected, however no specific hypothesis was made about where these differences would occur given a lack of research in the area.
2. Individuals who play games depicting higher levels of violence would perceive behavior depicting aggression as less serious. To determine whether or not individuals perceived the aggression as less serious it was predicted that they would respond with lower scores on Question 1, Question 2, Question 3, and Question 8. Research suggests that people who play violent video games experience an increase in aggression-related thoughts and a decrease in prosocial behavior (Bushman & Huesmann, 2006).
3. Eron et al. (1972) found that the amount of time spent observing violence is positively correlated with the amount of aggression displayed by an individual. It was therefore hypothesized that participants engaging in longer hours of game play would perceive violent/aggressive behavior as less serious than those who played more limited hours of aggressive video games. Again, to determine whether or not individuals perceived the aggression as less serious it was predicted that they would respond with lower scores on Question 1, Question 2, Question 3, and Question 8. A positive correlation between the amount of game play and the level of perceived aggression in the participants was expected.
4. Dooley et al. (2009) indicate that the reason cyberbullying is so prevalent is because

the perpetrator is able to act anonymously, thus lessening feelings of guilt and remorse. It was hypothesized that participants receiving the online aggression scenarios would perceive it as less harmful and less serious than those receiving the offline aggression scenarios because the act was taking place anonymously online as opposed to face-to-face offline. To determine whether or not individuals perceived the aggression as less serious when taking place online it was predicted that they would respond with lower scores on Question 1, Question 2, Question 3, and Question 4.

Method

Participants

A mass email was sent out to Grenfell students and the survey link was distributed through Twitter and Facebook. People were asked to complete a survey regarding video game interactions. Participants were informed that their participation was completely voluntary and were told that they must be over the age of 16 to complete the study. The sample consisted of 129 participants which included 70 women with a mean age of 19.25 years ($SD = 1.42$) with a range of 17 to 22 years, and 59 men with a mean age of 20.36 years ($SD = 1.35$) with a range of 17 to 23 years.

Materials

The study was completed online. Therefore the survey and all appropriate consent forms were embedded in the link that was sent for the study. A screen outlining the purpose of the study, confidentiality, anonymity, task requirements, the right to withdraw, and contact information was provided to participants prior to completing the survey (see Appendix A). The survey had four parts. The first part consisted of a question asking participants to indicate which category/categories of video game(s) they played. Next a list of eight categories of games was provided in an attempt to encompass the majority of categories of video games presently on the market (see Appendix B). Participants were then asked to specify how many hours per week they spent playing each type of video game they listed in part one. Participants were then provided with one of eight possible scenarios in which a 14-year-old individual was depicted as playing a violent video game

against another individual of the same age. The names were changed in the scenarios to reflect four possible combinations (i.e., male on male, male on female, female on male, female on female), in one of two settings (i.e., online or offline). Next participants were presented with a list of eight questions (using a 10 point Likert-type scale) regarding the scenario they had read. Questions were designed to assess their perception of violence and aggression. Finally, two demographic questions (i.e., age and gender) were asked. Upon completion of the survey, participants were provided with information regarding the purpose of the study and were thanked for their participation (see Appendix C). Violent video games included First Person Shooters, Role Playing games, and Vehicle Operation games, and nonviolent video games included Life Simulation, Trivia, and Board Games.

Procedure

A mass email was sent out through Grenfell Campus mail requesting anyone over the age of 16 who was interested to complete the survey. A link to the survey was attached to the end of the email. Messages were also posted on Mark Watton's "wall" on Facebook providing similar information and the link to the study. Finally tweets with the survey link were sent to gaming blogs via Twitter asking for "retweets".

Results

Influence of Perpetrator, Victim and Participant Gender

A 2 (perpetrator: male vs. female) x 2 (victim: male vs. female) x 2 (gender of participant: male vs. female) x 2 (behaviour: online vs. offline) MANOVA was completed to assess whether these factors influenced perceptions of the scenarios (see Table 1 for means and standard deviations). There was a significant effect of participant gender, $F(8, 104) = 13.74, p = .008$; Wilk's $\lambda = 0.825$, partial $\eta_p^2 = .18$.

One way ANOVAs were completed to determine the questions on which perceptions differed. The ANOVAs revealed significant gender of participant differences for three questions. One difference was found for Question 2 (“How serious do you believe the perpetrator’s behaviour to be?”), $F(1, 111) = 4.24, p = .042, \eta_p^2 = .037$. Female participants perceived the aggressive behaviour as being more serious than male participants ($M = 6.28, SD = 1.11$; $M = 5.33, SD = 1.00$, respectively). A second differences was found for Question 3 (“Do you think that the perpetrator’s behaviour will cause the victim alarm or personal distress?”), $F(1, 111) = 6.85, p = .01, \eta_p^2 = .058$. Female participants perceived the perpetrator’s behaviour as causing the victim more alarm or distress than male participants ($M = 6.71, SD = 1.21$; $M = 5.57, SD = 1.23$, respectively). The third difference was found for Question 4 (“Do you think the perpetrator’s behaviour will cause the victim to fear that the perpetrator will use violence against him/her?”), $F(1, 111) = 11.87, p = .001, \eta_p^2 = .097$. Female participants perceived the victim as being more likely to fear violence from the perpetrator than male participants ($M = 4.04, SD = 0.76$; $M = 2.34, SD = 0.76$, respectively). Although the

MANOVA did not show an effect of gender of the victim or gender of the perpetrator, ANOVAs were completed to see if there were differences in perception based on these variables, and to assess each independent variable separately. No correction factor for experimenter-wise error as there are no previous research findings and these were exploratory in nature. There was a significant difference between the perception of male versus female perpetrators on Question 4 (“Do you think the perpetrator’s behaviour will cause the victim to fear that the perpetrator will use violence against him/her”), $F(1, 111) = 4.73, p = .032, \eta_p^2 = .041$. Male perpetrators were seen as being more likely to use violence than female perpetrators ($M = 2.70, SD = 0.45; M = 1.05, SD = 0.48$, respectively). There was also a difference in perception according to gender of the perpetrator on Question 8 (“How long do you think it will take the victim to recover after this situation is resolved”) $F(1, 111) = 5.49, p = .021, \eta_p^2 = .047$. Participants thought it would take the victim longer to recover if the perpetrator was male than if the perpetrator was female ($M = 5.22, SD = 1.01; M = 3.78, SD = 0.88$).

An ANOVA showed a three-way interaction between gender of the victim, gender of the perpetrator, and gender of the participant on Question 1 (“To what extent do you consider the perpetrator’s behaviour to constitute aggression?”), $F(1, 111) = 7.61, p = .007, \eta_p^2 = .064$. Follow-up tests showed that male participants perceived the aggressiveness of the behaviour differently if there was a male victim and a male perpetrator versus female participants, $F(1, 27) = 5.84, p = .023, \eta_p^2 = .178$. Male participants perceived the scenario involving a male perpetrator and a male victim as being more aggressive than female participants ($M = 8.83, SD = 1.32; M = 6.53, SD = 1.04$, respectively). Likewise there was also a gender of participant difference found in

the perceived aggressiveness of the behaviour between a male victim and a female perpetrator, $F(1, 27) = 4.98, p = .034, \eta_p^2 = .156$. In this case, male participants perceived the scenario involving a male victim and a female perpetrator as being less aggressive than female participants ($M = 4.85, SD = 1.22; M = 7.35, SD = 1.01$, respectively). There was no difference in the perceptions of female victims as a function of any interaction between gender of the participant and gender of the perpetrator.

The ANOVA also showed a two-way interaction between the gender of the victim and gender of the perpetrator on Question 1 (“To what extent do you consider the perpetrators behaviour to constitute aggression?”) $F(1, 111) = 7.74, p = .006, \eta_p^2 = .065$. Follow-up tests showed that the behaviour depicted in the scenario was seen as aggressive if the perpetrator was male and the victim was male, $F(1, 54) = 11.96, p = .001, \eta_p^2 = .18$, but not if the perpetrator was female and the victim was male, $F(1, 57) = 0.28, p = .601, \eta_p^2 = .005$. There was no difference in the perception of the scenario as aggressive if the victim was female regardless of whether the perpetrator was male or female.

Correlations

Table 2 shows the mean number of hours per week spent playing each game. First Person Shooter games (a violent video game) was played the most often each week. Correlations were conducted to assess whether there were any relationships between the hours per week of game play for the various games and participants’ perceptions of aggression. Table 3 shows the correlations between the hours per week participants spent playing each type of video game played and their perceptions on questions regarding

aggression. Correlations were calculated for overall game play. Additionally, correlations were calculated for the online versus offline scenarios to permit an interpretation of differing attitudes among gamers regarding online versus offline aggression.

Overall

There was an overall negative correlation between playing First Person Shooter games (i.e., violent game) and Question 4 (“Do you think the perpetrator’s behaviour will cause the victim to fear that the perpetrator will use violence against him/her?”). The more people reported playing a First Person Shooter game the less likely they were to think the victim should fear violence from the perpetrator. There was also a negative correlation between playing First Person Shooter games and perceptions on Question 8 (“How long do you think it will take the victim to recover after this situation is resolved?”). The more people reported playing a First Person Shooter game the less time they thought it would take the victim to recover after the situation had been resolved. There was an overall negative correlation between playing Role Playing games and Question 8. The more a person reported playing Role Play games the less time they thought it would take the victim to recover after the situation had been resolved. There was also a negative correlation between playing Role Play games and Question 3. The more people reported playing Role Play games the less likely they were to think the victim in the scenario would be distressed by the perpetrators’ aggression. There was an overall positive correlation between playing Vehicle Operation games and Question 5 (“To what extent is the victim responsible for encouraging the perpetrator’s behaviour?”). The more people reported playing Vehicle Operation games the more likely they were to think that the victim was responsible for encouraging the perpetrators’ behaviour. There

was a negative correlation between playing Vehicle Operation games and Question 3. The more people reported playing a Vehicle Operation game the less likely they were to think the victim in the scenario would be distressed by the perpetrators' aggression.

There was an overall positive correlation between playing Trivia games, Life Simulation games, Board Games, (i.e., non-violent games) and Question 4. The more people reported playing one of these games the more likely they were to think the victim should fear violence from the perpetrator. There was also a positive correlation between playing Board Games and Question 8. The more a person reported playing Board Games the more time he/she thought it would take the victim to recover after the situation has been resolved.

Online/Offline

There were also some similarities and differences found between the perceptions of aggression online and offline. There were negative correlations between Question 4 and both violent video games, and positive correlations between Question 4 and three non-violent video games for the online scenarios but not the offline scenarios.

Specifically, there was a negative correlation between playing First Person Shooter games and Question 4 for both online and offline scenarios. The more people reported playing a First Person Shooter game the less likely they were to think the victim should fear violence from the perpetrator regardless of where the incident took place. There was also a negative correlation between playing First Person Shooter games and perceptions on Question 8 for the online scenarios, but not the offline scenarios. The more people reported playing a First Person Shooter game the longer they thought it would take the victim to recover if the incident occurred offline.

A negative correlation between playing Role Play games and Question 3 was found for the online scenarios, but not for the offline scenarios. The more people reported playing a Role Playing game the less likely they were to think the victim in the scenario would be distressed by the perpetrators' aggression. There was also a negative correlation between playing Role Playing games and Question 4 for the online scenarios but not the offline scenarios. The more a people reported playing a Role Playing game the less they thought the victim should fear violence for online scenarios but not offline scenarios. Finally, there was a positive correlation between playing Role Playing games and Question 6 ("Do you think that the victim could resolve the situation?") for the offline scenarios. The more people reported playing Role Play games the more likely they were to think that the situation could be resolved by the victim for the offline scenarios but not the online scenarios.

There was a negative correlation between playing Vehicle Operation games and Question 3 for the online scenarios. The more people reported playing Vehicle Operation games the less they thought the victim should be distressed by the aggression for online scenarios but not offline scenarios. There was a positive correlation between playing Vehicle Operation games and Question 5 for the online scenarios. The more people reported playing Vehicle Operation games the more they thought the victim was responsible for encouraging the perpetrators behaviour for the online scenarios but not the offline scenarios. There was a positive correlation between playing Trivia games and Question 1 ("To what extent do you consider the perpetrators behaviour to constitute aggression?") for the offline scenarios. The more a person reported playing Trivia games the more likely they were to think the perpetrators' behaviour was aggressive for offline

scenarios but not online scenarios. There was a positive correlation between playing Life Simulation games and Question 4 for the online scenarios. The more people reported playing a Life Simulation game the more likely they were to think the victim should fear violence from the perpetrator for the online scenarios but not the offline scenarios.

Finally, there was a positive correlation between playing Board Games and Question 4 and Question 8 for the online scenarios. The more people reported playing Board Games the more likely they were to think the victim should fear violence and more likely to think it would take longer for the victim to recover for the online scenarios but not the offline scenarios.

Discussion

This study was conducted to examine the effects that violent video games have on perceptions of aggression. Hypothesis 1 predicted that there would be gender differences, although it was uncertain where they would occur. There were gender differences according to participant gender, victim gender, and perpetrator gender. The two-way interaction between perpetrator, victim, and participant gender was seen with male victims but not female victims. This was unexpected and is somewhat alarming. In this study it seems the behaviour depicted in the scenario was viewed as being more aggressive if the perpetrator and the victim were both male, than if the victim was male and the perpetrator was female. These are significant findings as it appears as though females are not being perceived as being as aggressive under any condition. These results somewhat contradict previous studies which suggest that the perpetrator is usually the one being blamed for his/her actions regardless of gender (Kim et al., 2008; Schoffstall & Cohen, 2011). In current society females are not portrayed as being able to act as aggressively as males and this seems to carry over to video game aggression (Mehroof, 2010). Repercussions of viewing females in this way are not only naive but are dangerous given the current cyberbullying issue (Alvarez, 2012). If we view females as being unable to act aggressively we are completely ignoring this side of cyberbullying, which is problematic for future research. Therefore any further research in the field has to be geared towards studying cyberbullying as a function of gender to see where the differences lie (Alvarez, 2012).

Hypothesis 2 predicted that overall, individuals who play games that depicted

higher levels of violence would perceive behaviour depicting aggression as less serious due to the increased aggression seen in their own game play (Anderson & Bushman, 2001; Anderson, 1977). The negative correlations between Question 4 and hours spent playing violent video games (First Person Shooter and Role Play), as well as the online correlations shows that those who play violent games perceive the situation as less violent and not as aggressive as those who play nonviolent video games. Therefore this hypothesis was supported.

Hypothesis 3 predicted that participants who engage in longer hours of game play would perceive violent/aggressive behaviour as less serious than those who played more limited hours of aggressive video games (Eron et al., 1972). The hypothesis was supported, as there was a negative correlation between hours of violent game play and the Question 8. In other words, people who reported playing violent video games thought the victim would take less time to recover. These findings seem to reflect the results of previous studies which state that younger people are heavily influenced by what they witness in their daily lives through video games (Gardner, 2011; Griffiths, 1999). Children who are playing these violent games appear to become desensitized in their perceptions of aggression which may possibly be because their schemas have not yet been fully formed, allowing for easier moulding of the mind around these violent concepts (Bushman & Huesmann, 2006). Therefore, they do not perceive the aggressive situation as being aggressive and think the victim will not take long to recover. While the majority of video games on the market today do display some type of violence, not all types of video games display or promote it (Dominick, 1984; Griffiths, 1999; Loftus 1983). Therefore it cannot be assumed that game play in general leads people to become

desensitized to aggression (Dill & Dill, 1999). Video games that do not display violence were also included in the current study with the hypothesis that these types of games would yield results opposite to those seen with people who play violent video. In other words, it was expected those who played non-violent games should not experience the desensitization in their perceptions of aggression as they are not constantly witnessing violent situations in their games. This prediction was also supported. The positive correlations between Question 4 and the non-violent games show that those who played the non-violent games perceived the scenario depicting aggression as far more serious than those who played violent games.

Hypothesis 4 predicted that there would be a difference in the perceptions of aggression between online and offline games, namely that the online scenarios would be perceived as less aggressive than the offline scenarios because the act is taking place anonymously online as opposed to face-to-face offline (Dooley et al., 2009). Video game research suggests that this would be the case as video game violence appears to have more of an impact than any other media portrayals (e.g., television) since it displays much higher levels of violence (Dominick, 1984; Smith et al., 2003). Furthermore, the fact that people are now able to play these violent games online under anonymous identities, accompanied by the fact that they may already have an increased desensitization to aggression, increases the chance for cyberbullying (Kim et al., 2008; Schoffstall & Cohen, 2011). This hypothesis was also supported but only for the question regarding whether or not the situation could be resolved by the victim. In this case, there was a positive correlation which suggests the situation could be resolved more easily if it occurred offline. This could be because in the offline scenario the characters were in the

same room playing against one another, which may suggest they are friends or at least know one another enough to resolve the situation more easily.

Limitations

A possible limitation was the lack of a measure of aggression prior to playing violent video games. There was a relationship between perceived aggression and violent game play however we do not really know if the participants who played violent games did so because they already displayed aggressive tendencies. While there was a relationship between the number of hours of violent game play on perceptions, a measure of aggression prior to any game play would have been ideal.

Conclusion

While there were some minor limitations, the results of this study cannot be underestimated. Even with a small sample size it is easy to see the effect violent video games have on people's perceptions. Those who play violent video games do not perceive an aggressive situation as being aggressive. Furthermore, with a sample of non-violent game players it was possible to use them as a baseline to compare the violent game players. Again, results showed how the non-violent gamers had different perceptions of aggression compared to violent gamers. Therefore, it is obvious that violent games have some effect on people's perceptions. The results depicting the differences in gender can also not be understated. The results show that females are not perceived as which is an area that could be further examined in regard to cyberbullying, as there could be major repercussions of perceiving females in this way.

The effect that video games have on perceived aggression is obvious. From the results, it is seen that the hours spent playing violent video games one plays effect on the way they view an aggressive situation. This information could be used in a variety of ways. If it is true that violent game play positively affects ones desensitization to aggression, and younger minds can be more easily influenced by what they see a case could be made to implement stricter age restrictions on certain violent games (Healy, 1999). In other words, games that are currently rated for young children or teenagers may have to be changed to a higher age based on the amount of violence depicted in them. Ultimately, the question that is of most importance and that must be addressed in relation to aggression is whether or not individuals who play violent games *act* more aggressively because they do not *perceive* their behaviour as being aggressive.

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Table 1
Means and Standard Deviations for ANOVAs

Questions	Male perpetrator		Female perpetrator	
	Male victim	Female victim	Male victim	Female victim
Q1. Constitute Aggression	8.83(1.32)	6.53(1.04)	4.85(1.22)	7.35(1.01)
Q2. Seriousness of Behaviour	6.19(1.00)	5.67(1.11)	3.62(1.01)	5.83(1.00)
Q3. Victim Alarm/Distress	5.21(1.23)	6.71(1.21)	4.63(1.04)	6.42(1.09)
Q4. Fear of Violence	2.34(0.67)	4.04(0.76)	1.05(0.45)	2.70(0.48)
Q5. Victim Responsibility	1.05(0.50)	0.40(0.02)	1.13(0.37)	1.31(0.50)
Q6. Victim Resolve Situation	6.59(1.03)	6.35(1.03)	7.02(1.10)	6.59(1.04)
Q7. Duration of Aggressiveness	7.77(1.03)	6.83(0.99)	7.13(1.01)	8.38(1.12)
Q8. Duration of Victim Recovery	5.22(1.01)	3.78(0.88)	3.64(0.99)	3.77(0.99)

Table 2
Mean Number of Hours Per Week Playing Each Game

Game	<i>M</i>	<i>SD</i>	<i>n</i>
FPS	17.02	5.35	86
Role Play	12.44	5.23	87
Vehicle Operation	3.02	.99	22
Trivia	1.02	1.00	21
Life Simulation	4.98	1.98	45
Board Games	1.09	.58	39

Table 3
Correlations between Game Type and Aggression Questions

Group	FPS	Role Play	V.O.	Trivia	LifeSim	Board Games
<u>Overall</u>						
Q3. Victim Distress	-.15(129)	-.12(129)	-.20(129)*	.007(128)	-.10(129)	.05(129)
Q4. Fear of Violence	-.25(129)**	-.25(129)**	-.05(129)	.35(128)**	.20(129)*	.27(129)**
Q5. Victim Responsibility	.003(129)	.05(129)	.20(129)*	-.7(128)	.14(129)	.03(129)
Q8. Length of Recovery	-.25(127)**	-.24(127)**	-.15(127)	.08(126)	.07(127)	.18(127)**
<u>Online</u>						
Q3. Victim Distress	-.22 (73)	-.26(73)*	-.26(73)*	-.03(73)	-.07(73)	-.03(73)
Q4. Fear of Violence	-.24(73)*	-.24(73)*	-.02(73)	.45(73)*	.30(73)*	.40(73)*
Q5. Victim Responsibility	-.02(73)	-.01(73)	.29(73)*	-.06(73)	.09(73)	.001(73)
Q8. Length of Recovery	-.28(72)*	-.26(72)	-.19(72)	.12(72)	.08(72)	.25(72)*
<u>Offline</u>						
Q1. Constitute Aggression	-.15(56)	-.22(56)	.01(56)	.28(55)*	-.10(56)	.13(56)
Q4. Fear of Violence	-.30(56)*	-.26(56)	-.15(56)	.21(55)	.10(56)	.09(56)
Q6. Resolve Situation	.16(56)	.32(56)*	.09(56)	-.07(55)	.01(56)	.03(56)

Note: number in brackets refers to n for correlation.

* $p < .05$, ** $p < .01$

Appendix A

This study is being conducted to look at how you perceive video game interactions. It is being conducted at Grenfell Campus, Memorial University of Newfoundland by Mark Watton as a part of his fourth-year honors thesis in psychology under the supervision of Dr. Kelly Warren. By participating in this study, your consent is assumed, and it is also assumed that you are over the age of 16-years-old. The survey will take approximately 5 minutes to complete. There are no obvious risks or benefits involved with this study.

Your responses are anonymous and confidential. No IP addresses will be collected. All information will be analyzed and reported on a group basis, and therefore individual responses will not be identified. Your participation in this study is totally voluntary and you are free to stop participating at any time prior to finishing the survey.

Please read each question carefully and then answer the questions as truthfully as possible.

Appendix B

Male on Male Online Aggression

Video games have become extremely popular over the past decade and even more so in recent years. In the present study I am interested in looking at the types of games you play and your perception of gaming interactions. This study is divided into three parts. In the first part you will be asked to check off items on a list to establish the type of games you play. Next, you will be asked your opinions about an interaction between two individuals who are playing a video game. Finally, you will be asked for some basic demographic information.

Section 1

Which categories of the following games do you play? Please check all that apply

First Person Shooter (i.e. combat from the perspective of the character controlled by the player – e.g Call of Duty)

Role Playing (i.e. completing quests, strengthening character, etc. – e.g. World of Warcraft)

Life Simulation (i.e. Living and/or controlling artificial life – e.g. SimLife)

Vehicle Operation (i.e. provides the player with a realistic interpretation of operating various kinds of vehicles)

Board Game (e.g. Chess, Solitaire, Mah-jongg, etc.)

Trivia (i.e. provides players with a series of questions designed to test their knowledge)

Other (Please specify: _____)

How many hours do you play each game?

- First Person Shooter Trivia
 Role Playing Vehicle Operation
 Life Simulation Board Game(s)
 Other (Please specify: _____)

Section 2

Next, I would like to know how you would interpret the following interaction. Please read the scenario and answer the questions that follow.

14-year old Derek is playing a first person shooter game online. He enters a game room and begins playing against an individual his own age named Joey. After killing Joey multiple times, Derek becomes annoyed as he wants a greater challenge and he begins to talk down to Joey, saying things like “Man, you really suck at this game. Well then again, you probably suck at everything so what can I expect, right?” and “You are such a loser! I’m sure a two-year-old could beat you at this game!” Joey doesn’t respond to Derek’s comments.

1. To what extent do you consider Derek’s behavior to constitute aggression?

Definitely not aggression

Definitely aggression

0 1 2 3 4 5 6 7 8 9 10

2. How serious do you believe Derek's behavior to be?

Not at all serious

Extremely serious

0 1 2 3 4 5 6 7 8 9 10

3. Do you think Derek's behavior will cause Joey alarm or personal distress?

Definitely not

Definitely

0 1 2 3 4 5 6 7 8 9 10

4. Do you think Derek's behavior will cause Joey to fear that Derek will use violence against Joey?

Definitely not

Definitely

0 1 2 3 4 5 6 7 8 9 10

5. To what extent is Joey responsible for encouraging Derek's behavior?

Not at all responsible

Totally responsible

0 1 2 3 4 5 6 7 8 9 10

6. Do you think that Joey could resolve the situation?

Definitely not

Definitely

0 1 2 3 4 5 6 7 8 9 10

7. How long do you believe this will continue?

Not long at all A very long time
0 1 2 3 4 5 6 7 8 9 10

8. How long do you think it will take Joey to recover after this situation is resolved?

Not long at all A very long time
0 1 2 3 4 5 6 7 8 9 10

Section 3

Finally, we would like to ask you some questions about yourself. Any information provided will only be used for statistical purposes and is completely confidential and anonymous.

1. Age ____

2. Gender

____ Male ____Female

Male on Male Offline Aggression

Video games have become extremely popular over the past decade and even more so in recent years. In the present study I am interested in looking at the types of games you play and your perception of gaming interactions. This study is divided into three parts. In the first part you will be asked to check off items on a list that establish the type of games you play. Next, you will be asked your opinions about an interaction between two individuals who are playing a video game. Finally, you will be asked for some basic demographic information.

Section 1

Which categories of the following games do you play? Please check all that apply

First Person Shooter (i.e. combat from the perspective of the character controlled by the player – e.g Call of Duty)

Role Playing (i.e. completing quests, strengthening character, etc. – e.g. World of Warcraft)

Life Simulation (i.e. Living and/or controlling artificial life – e.g. SimLife)

Vehicle Operation (i.e. provides the player with a realistic interpretation of operating various kinds of vehicles)

Board Game (e.g. Chess, Solitaire, Mah-jongg, etc.)

Trivia (i.e. provides players with a series of questions designed to test their knowledge)

Other (Please specify: _____)

How many hours a week do you play each game

- First Person Shooter Trivia
 Role Playing Vehicle Operation
 Life Simulation Board Game(s)
 Other (Please specify: _____)

Section 2

Next, we would like to know your opinion about the following interaction. Please read the scenario and answer the questions that follow.

14 year-old Derek is playing a first person shooter game with his friend, 14 year-old Joey. Derek and Joey are in the same room playing against one another on a single console. After killing Joey multiple times, Derek becomes annoyed as he wants a greater challenge and he begins to talk down to Joey, saying things like “Man, you really suck at this game. Well then again, you suck at everything so what can I expect, right?” and “You are such a loser! I’m sure a two-year-old could beat you at this game!” Joey doesn’t respond to Derek’s comments.

1. To what extent do you consider Derek’s behavior to constitute aggression?

Definitely not aggression

Definitely aggression

0 1 2 3 4 5 6 7 8 9 10

2. How serious do you believe Derek's behavior to be?

Not at all serious Extremely serious
0 1 2 3 4 5 6 7 8 9 10

3. Do you think Derek's behavior will cause Joey alarm or personal distress?

Definitely not Definitely
0 1 2 3 4 5 6 7 8 9 10

4. Do you think Derek's behavior will cause Joey to fear that Derek will use violence against Joey?

Definitely not Definitely
0 1 2 3 4 5 6 7 8 9 10

5. To what extent is Joey responsible for encouraging Derek's behavior?

Not at all responsible Totally responsible
0 1 2 3 4 5 6 7 8 9 10

6. Do you think that Joey could resolve the situation?

Definitely not Definitely
0 1 2 3 4 5 6 7 8 9 10

7. How long do you believe this will continue?

Not long at all

A very long time

0 1 2 3 4 5 6 7 8 9 10

8. How long do you think it will take Joey to recover after this situation is resolved?

Not long at all

A very long time

0 1 2 3 4 5 6 7 8 9 10

Section 3

Finally, we would like to ask you some questions about yourself. Any information provided will only be used for statistical purposes and is completely confidential and anonymous.

3. Age ____

4. Gender

____ Male ____Female

Appendix C

Debriefing

The purpose of this study was to assess the perception of verbal aggression among individuals who play violent versus non-violent video games. The information provided to participants about this behaviour was manipulated (whether it occurred online vs. offline) and participants were asked to indicate their own video game use to determine whether these factors influence the perception aggressive behavior.

Participants were provided with one of eight scenarios. The names were changed in the scenarios to reflect four possible combinations (i.e. male on male, male on female, female on male, female on female), in one of two settings (i.e. online or offline). I am interested in whether or not there is a gender difference and whether the type and amount of gaming behavior influences perceived aggression.

The information provided will help us to determine people's perception of verbal aggression towards others in video games. If you have any questions please contact Kelly Warren at kwarren@grenfell.mun.ca or Mark Watton at mwatton@grenfell.mun.ca. Thank you for your participation.