A Comparison of the Effects of Violent and Non-violent Video Games on Aggressive Behaviour in Adolescent Males

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ABSTRACT

This study was conducted to compare the effects of violent and non-violent video games on aggressive behaviour in adolescent males. The aim of this study was to show whether violent video games led to aggression in adolescent males when they are working in teams. A group of adolescent males were divided, based on how skilled they were at computer games. One group played a non-aggressive game, Fifa 15, and the other played an aggressive one, Halo: Reach. Each individual carried out Buss & Perry’s aggression questionnaire, before and after they played the game. Before the participants took the final aggression questionnaire, they took part in a team building exercise where their aggressive tendencies were observed. A 2x2x4 mixed within-between ANOVA was conducted to explore the impact the games had on aggressive behaviour. Overall, no significant main effect was found for the variable group, suggesting that the nature of the video game did not significantly impact aggression scores. Similarly, no main effect for time was found, suggesting that the introduction of a video game has no impact on aggression, regardless of its degree of violence.
1.1 Introduction

Exposure to violent video games is significantly linked to increases in aggressive behaviour, aggressive cognition, aggressive affect, and cardiovascular arousal, and to decreases in helping behaviour (Anderson, 2003). Anderson found that violent video games are thought to increase aggressive behaviour and decrease prosocial behaviour, as well as increase aggressive thoughts in both male and female children and adults, in an experimental and non-experimental setting. The majority of research, especially the research in the following paper, related to exposure to violent video games, also exposure to violent media and television, found that people, especially children, youth adults, and college age students were at more of a risk of temporarily increasing their aggressive behaviour, aggressive cognition, and decreasing prosocial behaviour (Anderson, 2001).

1.2 Literature Review

There is a lot of literature and various studies in relation to increased aggression levels caused by video games. For example, in 2006, Anderson, Gentile and Buckley conducted a study to show the effect violent video games have on children and adolescents. They believe that the games rating are not always an accurate indicator of its content. Anderson stresses that parents must examine the content of the video games before allowing their child to play, as repeated exposure to violent entertainment media of any type is an important risk factor for later aggressiveness (Anderson, 2006).

In addition, a study of computer game content Provenzo (1991) reported of forty seven leading Nintendo games, seven of them did not involve violence. He found that video games where populated by SWAT teams, terrorists and robotic police officers. Women were
also cast as victims, and immigrants as evildoers (Provenzo, 1991). This led to the conclusion that video games advocate sexism, violence and racism by conditioning children to view the world the same way they would on a computer screen. Concern has been raised that video games may have a greater adverse effect on child than television because of the child’s active involvement (Bowman & Rotter, 1983). Greenfield (1984) suggested that children prefer video games over television because there is greater personal control.

Despite having greater personal control while playing video games, research suggests that with the growing control video games are having on children and adolescents, they are failing to distinguish between reality and the game they are playing. Goodson et al (2010) examined “The Halo Shooter”, 17 year old Daniel Petric. On Sunday 21st October 2007, Petric walked into the room his parents were in and asked them to close their eyes because he had a surprise for them. He then proceeded to shoot both his parents in the head, wounding his father and killing his mother. Petric had planned the attack on his parents after they had taken away his video game, Halo 3. The media suggested that Petric believed his parents were not truly dead, and that they would regenerate as in the game. When looking at this case, Goodson suggested that video games increase aggressive behaviour. He reported that video games taught gamers to become aggressive by a number of mechanisms, including priming previously learned aggressive schemas, schemas being an organised pattern of thought that organising categories of information and the relationships among them, increasing physiological arousal or by creating an aggressive state. Anderson & Bushman (2001) proposed that violent video games act to facilitate the learning of aggression as a schema to deal with everyday situations and that the response to social interactions are as a result of behaviour that has been learnt through video games. They also proposed that after a few exposures to violent media the interpretation of social behaviours could be modified to induce an increase in aggression (Anderson, 1983).
According to Anderson’s (2001) General Aggression Model (GAM), aggression is the result of the activation to specific schemas or representations located in memory and are related to aggression. Therefore, the more often these schemas are activated and modified by violent media the more aggressive an individual becomes and repeated exposure contributed to the development of an aggressive personality. The GAM proposed that repeated exposure to violent media results in hostile social interaction schemas that create aggressive cognitions, aggressive responses to social interactions and in turn more aggressive individuals. In addition, Anderson & Bushman (2001) proposed that playing violent video games resulted in a direct decrease in prosocial helping behaviours, where individuals were less likely to help someone in distress or in a violent situation.

As well as violent video games decreasing prosocial behaviours, Goodson & Pearson’s (2009) EEG study found that when participants were killed during the game there was a surge in the area that is responsible for emotional processing as it is a representation of personal loss. The role of video game content inducing aggression was investigated. The sample consisted of 40 participants, 20 males and 20 females. They were also subdivided into 14 experienced gamers, 12 casual gamers, and 14 non-gamers. Two games were selected for the study, ‘Project Gotham Racing 3’ and ‘Gears of War 2’. This was rated the most violent and gory game available at the time of the experiment. Participants played the game for a ten minute block and were then asked to complete the State Trait Anger Expression Inventory (STAXI). While playing the game, participants were also connected to an EEG and physiological feedback equipment. Baseline measurements were recorded before the experiment, and were recorded continuously while participants played the game. The EEG data showed the participants who played the driving game had a significant increase in activity in brain regions associated with expressing aggression. The regions associated with planning and decision making also had a significant increase in activity. There was a
significant increase in both respiration and heart rate change in participants playing the driving game, also. The EEG data from the participants playing the violent game, showed generally lower brain activity when they were shooting or killing opponents.

Goodson concluded that this was because most individuals have no experience handling a gun or killing another individual. However, when the participants were killed there was a surge of activity in the regions of the brain associated with emotional processing. Goodson & Pearson (2009) proposed that the death of the participant in the video game is activating representations relating to personal loss resulting in the observed activity. This would suggest that situations that can induce an emotional response in real life can also result in a similar response when they are created within the gaming environment. It is important to investigate why gamers make decisions and the effects that their decisions have on brain activity and cognitive appraisals of the world and the limits of behaviour.

Kirsh (2002) also looked at Anderson’s work on violent video games influencing aggressive behaviour, when researching acts of extreme violence involving teens and how they link to violent video games. Video games became popular in the late 1970’s however, due in part to a rash of school shootings perpetrated by adolescent boys, and the effects of video games recently have come under scientific, public and political scrutiny. For example, several of the leading researchers in the field recently testified before a U.S. Senate Commerce Committee hearing about the effects of violent video games on children and adolescents (Anderson, 2000). Given that the incidence of aggressive behaviour varies across adolescence a developmental perspective is crucial to the understanding of the influence of video game violent on adolescent aggression. It may be that adolescents are more vulnerable to the effects of violent video games during certain developmental periods. These
developmental notions of individual differences suggests that only certain adolescents may be susceptible to the negative consequences associated with playing violent video games.

Theoretical explanations for the link between exposure to violent video games and aggression have come about using several classic theories of aggression. For example, Bandura’s (1986) social learning theory suggests that exposure to video game violence would evoke behavioural mimicry, reinforce existing aggressive habits, and increase internal arousal. This internal arousal could be interpreted as anger, which increases the chances of aggression occurring. According to Berkowitz’s (1984) Cognitive Neoassociation Model of Aggression, playing violent video games should create and activate networks of aggressive thoughts, feelings, memories, and beliefs. Berkowitz regards aggression as any behaviour, physical or verbal, that is performed with the intention to harm someone, either physically or psychologically. He believes it is also important to draw the distinction between instrumental and hostile aggression. Where all aggression is a deliberate attempt to injure someone, in hostile aggression the primary goal is to hurt and inflict pain, while instrumental aggression is oriented chiefly toward the attainment of some other objective such as money, social status, or territory.

Kirsh is intrigued by why playing violent video games and developmental changes in adolescent aggression correspond. It is possible that as adolescents become more aggressive, they become more attracted to activities that involve aggression (Kirsh, 2002). For instance, Goldstein (1998) carried out research that shows that highly aggressive boys have been shown to prefer violent media compared to less aggressive boys. Goldstein argued that as psychosocial and biological factors trigger adolescents’ aggressive tendencies, adolescents should become drawn to more violent activities. Later on, developmental changes resulting in a decrease in aggressive behaviour may lead to decreases in preference for aggressive

activities. Also, because video games are action-oriented, high levels of arousal were created. According to Goldstein (1998) individuals who have a high need for sensation or arousal are attracted to violent imagery. Research by Lynch (1999) has shown that following violent video game play, individuals high in trait hostility show greater increases in heart rate and blood pressure accompany violent video game play. Research indicates that violent video result in an increase in physiological arousal and because adolescence is a time of increased risk taking and novelty seeking, Spear (2000) suggests that adolescents may be less affected by moderate stimuli than children or adults. As a result, adolescents may seek out sensation-producing activities, like video game playing, for rewarding experiences, thus, providing adolescents with acceptable levels of arousal.

Video game play has been shown to negatively impact social and emotional functioning in children, adolescents, and young adults. To explain how violent video games influence aggressive behaviour Anderson & Bushman (2002) used GAM. This model can be used to explain the development of aggression across adolescence and individual differences in susceptibility to the influence of violent video games. According to the model, violent video games influence aggressive behaviour through short-term and long-term effects. In the short-term violent video games function as a situational variable, resulting in an increase in aggression cognitions, affects and arousals. In the long-term, violent video games are hypothesized to influence aggressive behaviour by promoting aggressive beliefs and attitudes and creating aggressive schema, aggressive behavioural scripts, and aggressive expectations, as well as desensitizing individuals to aggression. In turn, these factors bias an individual’s personality towards aggression.

By the time children reach adolescence, personological and internal state component of the GAM, such as cognition, affects, and arousal are already in place. However between
early and late adolescence these variables will continue to develop and by influenced by current environments. Exposure to violent video should further affect the aggressive nature of the adolescents by creating or reinforcing aggressive cognition and scripts, by creating or reinforcing hostile affects, as by increasing aggression related arousal. According to GAM, cognitions, affects and arousals directly influence one another. Therefore the increase in these conditions that follow violent video game play should interact with one another to negatively bias internal state variables. The heightened physiological arousal experienced by early adolescent (Spear, 2000) should interact with internal state arousal caused by violent video games to create a cumulative level of internal state arousal that is higher than in middle and late adolescence, resulting in more aggressive behaviour.

The decision making processes of GAM may function differently across adolescence as cognitive deficiencies may result in more aggressive responding in early adolescence than in middle/late adolescence. Early adolescents should act impulsively and with little cognitive evaluation during emotionally laden situations. This should be heightened following video game play since the aggressive nature of video games should result in increased internal state arousal. Whereas, during late adolescence, the decision-making portion of GAM will become more rational and evaluative. Thus, even in a state of heightened arousal accompanied by hostile cognitions and affects occurs following violent video game play, late adolescents should be less likely to act aggressively due to their increased cognitive ability and lower levels of limbic system activity and adrenal hormones. However, even if violent video games affect early, middle and late adolescents; internal state variables, similarly, early adolescents should experience a greater increase in aggressive behaviour because of impulsive behaviour and poor decision making processes.
A study done by Kollstedt (2004) on the effects of graphical quality on aggression in violent video games suggests that violent video games increase level of aggression in some players. This study aimed to focus on how the games appearance affects aggression levels. The game chosen for this study was Call of Duty 4, which is violent and a realistic video game where that graphics can be easily manipulated. Throughout the experiment participants played with either a high or low level of graphics. Low graphic settings were played on a laptop and the high graphics settings were played on an Xbox 360. Pre-existing levels of aggression were measured using an aggression questionnaire which was administered before play. Participants played a tutorial level of the game to familiarize themselves, and then they played a level with real fighting. The aggression levels of the participants were measured by the competitive reaction time task (Bushman & Saults, 2007). In total, there were 27 participants, taken from a sample of undergraduate psychology students in a Midwestern University. Participants were randomly assigned to the two conditions, with 14 in the low and 13 in the high graphical conditions. The researchers hypothesized that the high graphical setting will produce higher levels of aggression in the participants.

Results showed that men have significantly higher levels of aggression than woman across both the low and high graphical gaming conditions. However, there were only three females in the high graphical setting, so there appeared to be a difference between the two conditions. Once the women were removed the difference was nullified. Therefore, these results can no longer be generalized to women. The frustration levels of the two graphical conditions were so similar so any differences in aggression were not caused by participant’s frustrations. In all three measures, hostility, anger and aggression, game play on the lower graphical setting actually made the participants less aggressive, whereas the high graphical condition made them more so. This suggested that the images in the low graphical settings weren’t strong enough to get the participants engaged in what they saw. While in the high
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graphical setting the violent images that the participants saw helped to activate the angry or hostile thoughts that were produced, suggesting that powerful graphics have an intense effect on the player.

In 2003, Funk, Buchman, Jenks, and Bechtoldt did a study on playing violent video games, desensitisation and moral evaluation in children and relationships between short-term and long-term exposure to violent video games and desensitisation, as measured through components of moral evaluation, were examined. The procedure involved sixty-six children between the ages of 5 and 12, being administered questionnaires assessing video game experience, preferences, empathy and attitudes towards violence. The children played a violent or non-violent game and then responded to scenes for everyday occurrences. These responses were coded for aggression and empathy. Results suggest that long-term exposure to violent video games may be associated with desensitisation as reflected in lower empathy. All children completed questionnaires on their typical game playing habits, and listed three of their favourite video or computer games. The children then completed a survey, the ATVC that measured their attitudes to violence and empathy. A total score was calculated across items with higher scores indicating stronger pro-violence attitudes. Participants also completed a survey measuring empathy. Questions addressed both cognitive and emotional aspects of empathy. Results were calculated the same way as the ATVC, with higher scores indicating higher levels of empathy. To assess game affects children were presented with ten scenes related to everyday situations after playing one of two games. Four of them were designed as an aggressive action as a probable next occurrence.

The overall result of the study shows that, over a long term period, exposure to violent video games may be associated with lower empathy in some children, this being an indication of desensitisation. They also found that not all children who play violent video games have it
impact them negatively. This may be because they are individuals with more trait aggressiveness. In addition, children with problems with emotional regulation or become frustrated easily are more inclined to be negatively affected by violent video games. From the questionnaires, higher empathy scores were related to higher empathy scene scores and more exposure to violent video games was related to lower empathy scene scores. Interestingly, short-term exposure to violent video games did not affect children’s ability to respond in an empathic or aggressive manner to the scenes.

1.3 Aggression, Competitiveness, and Teamwork

Despite the sheer volume of studies in relation to video game violent and how it affects aggression levels in children and adolescents, little of this research examines the effect this aggression has on adolescent’s ability to work in teams. Video game play is a social activity, and Lenhart, Kahne, Middaugh, Macgill, Evans & Vitak (2008) describe video games as a social experience for adolescents with 65% of them playing with other people that are in the room with them. 27% of adolescents play with other players that are connected through the internet. However, 82% of adolescents are found to play these games alone. Moreover, video games can lead to frustration and subsequent aggression on the basis of goal interference within play (Berkowitz, 1962). This suggests that once there are two or more individuals playing, both with the same aim, then games can become competitive, often leading to frustration. Because competitiveness often leads to frustration and aggression while the game is being played, this current study aims to find out if that aggression and frustration is transferred to everyday team work opportunities. Many studies have looked at how players interact with each other while playing, and if they are communicating and
interacting correctly (Leonard & Graham, 2004). However, there are no studies that have dealt with how players engage in team work after exposure to violent video games.

This is linked with Funk, Buchman, Jenks and Bechtoldt’s research as both examine the short term effect of violent video games. In the study by Funk et al, it was found that the type of game that was played did not affect their participant’s response to aggression and empathy, in terms of reaction to scenes that were presented to them. However, the relations with age group, empathy questionnaire scores and exposure to video game violence were significant predictors of empathy in responses to scenes that were presented. In this study, the short term effect of violent video games on aggression and how this aggression affects adolescent male’s ability to work in a team will be examined. The results of the violent video game players will be compared to those who play a typically non-violent game, both groups will take part in the same team building exercise.

This experiment was conducted to show that the ability to work in a team is affected by violent video games, when compared with a non-violent game. There is no current research on how video game induced violent affects team work ability. On completing a literature review, a research gap appears to show that further work is needed to study the short term effects of video game induced aggression and how it affects adolescent’s ability to work in teams. To date, most research focuses on aggression behaviour that is undesirable. It shows that 65% of adolescent males play video games (Lenhart, 2008) with at least one other person, both players having the same aim and objectives throughout the game, with the other player often hindering them winning which leads to frustration and sometimes aggression (Berkowitz, 1962). This may be significant when looking at how violent games affect team work ability. The results of this study should contribute to social and developmental psychology literature, and may provide useful information for game developers, caregivers,
educators, and policy makers involved in children’s welfare. The following hypotheses were formulated, that the group playing the aggressive video game will be more aggressive during the team building exercise, that the group playing the non-violent game will be less aggressive during the team building exercise, and that neither group would be aggressive during the team building exercise.
2.1 Method

2.2 Participants

Twenty-three secondary school students (all aged 16) participated in this study. Participants were divided into two groups, violent and non-violent, based on the results of the gaming skills survey they took. It showed how experienced and familiar each participant was with the game. Participants with more experience with the game were grouped with others with similar experience. Additionally, as the games were played on an Xbox, players who were more experienced with PlayStation were grouped together, so that they could learn from each other. Snowball sampling was used as the participants were all required to be adolescent males with some experience playing Xbox or PlayStation. The school also requested that participants were divided based on class group, to prevent disruption. Before the experiment participants who wear glasses were advised to bring them to ensure normal vision. Participants were required to have full use of both hands in order to hold the remote.

2.3 Design and Data Analysis

This experiment is a cross-sectional Quasi Experiment. The independent variables are teamwork ability, competitiveness and type of Xbox game. Dependent variables are aggression levels. The participants were divided into two groups. This was a between-groups study, in which violent games were compared to non-violent games in the context of teamwork. Groups are the between groups variable in this study.

To interpret the results, a 2x2x4 mixed between-within ANOVA was conducted to compare the effects of video game type on aggressive behaviours, with group type as the between groups variable, with two levels, and time, with two levels pre and post experiment, and aggression subscale type, with 4 levels as the within groups variable.
2.4 Materials

2.4.1 Buss & Perry Aggression Questionnaire

The Buss–Perry Aggression Questionnaire (1922), a self-rating scale, has quickly become the gold-standard for the measurement of aggression. It is widely used in undergraduate populations. There are 29 questions throughout. The questionnaire has four subscales, measuring 4 types of aggression, physical aggression, verbal aggression, anger and hostility. Questions 1-9 measures physical aggression, questions 10-14 measures verbal aggression, questions 15-22 measures anger and questions 23-29 measures hostility. The questionnaire provides statements like ‘Once in a while I can't control the urge to strike another person’, or ‘I know that "friends" talk about me behind my back’, and the participant answers between 1 and 5 on a Likert scale, one being ‘Extremely uncharacteristic of me’ and five being ‘Extremely characteristic of me’.

2.4.2 Gaming Skills Survey

The second scale that the participants filled out was to measure their gaming skills and abilities. It provided statements like ‘I play computer games often’ or ‘I am an expert in most games’ and participants had to answer between 1 and 5 on a Likert scale, 1 being ‘Extremely uncharacteristic of me’ and 5 being ‘extremely characteristic of me’. The scale had only 8 questions in total, 6 of them answered using a Likert scale. One questioned aimed to find out how many hours a week the participants play of video games. It gave them options to circle, ‘2-4’, ‘4-6’, ‘6-8’, ‘8-10’, or ‘10+'. The last question provided a list of games and asked participants to tick the games they were familiar with.

2.5 Apparatus
This experiment required a number of Xbox equipment, including an Xbox 360, 4 Xbox controllers and two games, both rated 16+, Halo: Reach and Fifa 15. A television, a stopwatch and large blocks of Lego were also required. With similar Lego blocks, a sculpture was built, in this case a wind turbine, and participants were provided with the same number of Lego blocks required to build the sculpture. Participants were also required to sign a participation form, and have their parents read an information sheet, and then sign a caregiver consent form. Finally when the experiment ended, the participants were given permission slips, signed by the school principal, explaining their reason for absence.

2.6 Procedure

Prior to participation, participants were provided with a consent form and instructions for the experiment. As participants were under 18, informed consent was also required from the participants’ guardians. Once the participants returned the consent forms, the first stage of the experiment commenced. This stage involved the participants filling out two questionnaires. The first questionnaire was Buss & Perry’s Aggression Questionnaire, to measure the participant’s aggression levels before the experiment was carried out. The second was a survey to measure the participants gaming skills and performance levels. This stage took place approximately 5 weeks before the experiment, as it was the only time appropriate for the school and it allowed sufficient time to elapse between repeated administration of the Buss and Perry Questionnaire.

Five weeks after the questionnaires were completed, participants completed phase two of the experiment. Both groups completed this phase at the same time. Participants were not aware who was in their group until they were taking part in the experiment. Each group played for approximately 20 minutes. Those who played Halo: Reach played against one another, on a campaign map that had been previously set up and timed to stop when the
participants had been playing for 20 minutes. Their objective was to achieve as many ‘kills’ as possible, additional points being awarded to they if they successfully killed one of the other three participants in the group. The participants who played Fifa15 played slightly over 20 minutes. The game was timed to play 10 minutes until half time, there was then a 45 second interlude before the second half commenced. The second half continued for a further 10 minutes. Two of the 3 groups drew at the end of the second half, so two minutes of extra time were added and then they were given the opportunity to take penalties, lasting a further three minutes. Both of these groups played for approximately 25 minutes.

Once the participants finished playing the game, they were given a 2 minute resting period. They were then brought into the adjoining room, they was empty apart from a set of large children’s Lego on the floor. The second part of the experiment was explained to the participants. It was a team building exercise that required one member of the group to go back into the first room and look at the Lego sculpture for ten seconds. The sculpture in the first room was a vertical wind turbine made with children’s Lego. The participants were provided with the same number of pieces to make a replica of the original. Once the first team member saw the sculpture for 10 seconds, he returned to his team and had 30 seconds to describe the sculpture. The team were then given 1 minute to build the sculpture, using their team member’s descriptions. This process continued until each team member had the opportunity to see the sculpture and made an addition to their teams sculpture.

When this process was over, the participants were given 2 minutes to compare their sculpture to the original. Then they all returned to the first room where they were given a 2 minute resting period. The final step involved the participants filling out the Buss & Perry Aggression Questionnaire once again. Once they finished they were given a further 2 minutes rest, in which time they were given an information sheet, summarizing what they had done,
and given them the opportunity to withdraw their results from the experiment if they wished. They were also given a form signed by the school principal, to give to their teacher, explaining why they were absent from class. The experiment took 45 minutes per group.

2.7 Ethical Considerations

As the participants of the experiment were all under 18, a Statutory Declaration was signed by a solicitor and a copy given to the school. Informed consent was also required so participants signed a consent form and their guardians were also given an information sheet, as well a consent form if they permitted their child to take part. To protect the anonymity of the participants, each participant was provided with a participant number that they used instead of their name.
3.1 Results

24 participants took part in this experiment initially. When participants returned to take part in the second part of the experiment, one participant was absent, so the second part of the experiment only had 23 participants. Table 1 shows the descriptive results in both groups before and after taking part in the experiment.

3.2 Table 1. Gaming skills survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Extremely uncharacteristic</th>
<th>Uncharacteristic</th>
<th>Uncertain</th>
<th>Characteristic</th>
<th>Extremely Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>I play computer games often</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>I am very comfortable playing computer games</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>I am an expert in most games</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>I am unsure of what to do when playing</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>computer games</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am very uncomfortable playing computer</td>
<td>17</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>games</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I play computer games sometimes but often</td>
<td>9</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>have to ask for help</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12 participants also reported in this survey that they played 10 hours or more of computer games per week, whereas only 1 reported that they played an hour or less. 14 of the 24 participants reported that played Xbox or PlayStation every day, 8 of them playing once a week and only 2 of them playing once every three months. Finally, all 24 participants admitted they have played Call of Duty: Ghost at least once, a game typically rated 18+. Only 11 participants had played Halo: Reach, the game that those in the violent game group would be playing. 21 participants had played the non-violent game, Fifa: 15, previously.

3.3 Table 2. Buss and Perry Aggression Questionnaire Descriptives

<table>
<thead>
<tr>
<th>Variable</th>
<th>Buss &amp; Perry Before</th>
<th>After</th>
<th>Physical Before</th>
<th>After</th>
<th>Verbal Before</th>
<th>After</th>
<th>Anger Before</th>
<th>After</th>
<th>Hostility Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>84.17</td>
<td>84.35</td>
<td>23.13</td>
<td>23.83</td>
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<td>15.4</td>
<td>6.02</td>
<td>6.94</td>
<td>4.9</td>
<td>4.53</td>
<td>4.04</td>
<td>3.93</td>
<td>5.38</td>
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The results of the Total scores of the Buss and Perry Aggression Questionnaire before and after the experiment was carried out showed no significant difference between them. Nor was there a significant difference in means for any of the subscales. This suggests that the nature of the video game did not significantly impact aggression scores and that the introduction of a video game has no impact on aggression.
A COMPARISON OF THE EFFECTS OF VIOLENT AND NON-VIOLENT VIDEO GAMES ON AGGRESSIVE BEHAVIOUR IN ADOLESCENT MALES

3.4 Fig 1. Aggression subscales, physical aggression before and after

3.5 Fig 2. Aggression Subscales, Verbal before and after
A COMPARISON OF THE EFFECTS OF VIOLENT AND NON-VIOLENT VIDEO GAMES ON AGGRESSIVE BEHAVIOUR IN ADOLESCENT MALES

3.6 Fig 3. Aggression Subscales, Anger before and after

3.7 Fig 4. Aggression subscales, Hostility before and after
### Table 3. Two-way mixed between ANOVA

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
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<td>.961</td>
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<tr>
<td>Wilks’ Lambda</td>
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<td>45.151</td>
<td>3.000</td>
<td>19.000</td>
<td>.000</td>
<td>.877</td>
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A mixed within-between ANOVA was conducted to explore the impact of violent and non-violent video games on aggression levels in two groups of adolescent males, as measured by Buss & Perry’s Aggression Questionnaire (1992). The analysis was done on the effect of group type and time on four aggression subscales, Physical Aggression, Verbal Aggression, Anger and Hostility. Overall, no significant main effect was found for group, suggesting that the nature of the video game did not significantly impact aggression scores. Similarly, no main effect for time was found, suggesting that the introduction of a video game has no impact on aggression, regardless of its degree of violence. Participants were divided into two groups, at random, Group 1 playing the violent game, Halo: Reach, and group 2 playing the non-violent game, Fifa: 15. F(1, 21)= .02, p=.96, therefore there was no statistically significant main effect for different groups. There was no significant interaction effects between group, time and aggression subscales, suggesting that groups did not differ based on time point or the nature of the subscale. The effect size was small, Partial Eta squared=.00. The within-subject analysis looks at F(1, 21)= .00, p=.83. When looking at aggression subscales, F(19)= .88, p=.00, it was found that there was a significant main effect for aggression subscales, however, this merely indicates that the subscales were significantly different to no another.
A COMPARISON OF THE EFFECTS OF VIOLENT AND NON-VIOLENT VIDEO GAMES ON AGGRESSIVE BEHAVIOUR IN ADOLESCENT MALES

3.9 Fig 5 2x2x4 mixed within between ANOVA on aggression subscales, group and time
3.10 Team Building Exercise Observations

When the participants took part in the team building exercise, a number of interesting observations were made. Those who had played the non-violent game, Fifa: 15 showed that in two out of three groups, the participants worked together as best they could in order to recreate the sculpture to the best of their ability by relying on their teammate’s description of the sculpture. The third group, who played the non-violent game, had one participant who took over when they had seen the sculpture. The other members of the team took a step back and allowed their team member to take over, however they seemed agitated, one participant even started biting their nails, but they all encouraged him to complete it before time ran out, instead of trying to help. The teams playing the violent game, Halo: Reach, had members that were more inclined to take charge. All three violent gaming groups made comments like “couldn’t be bothered” or “this is stupid”. It was also observed often that a team member would take over, once they had seen the sculpture, instead of accepting input from their team members.

Across both groups, violent and non-violent, the use of bad language was very prominent. Participants used this language to express an array of emotions. A number of participants appeared to be quite sarcastic with their team members, telling them that they are “a genius” or that they are “absolutely brilliant” if they did something wrong. When teams were told they only had a short amount of time left, some team members became visibly agitated, some displaying nail biting behaviours, hair tugging or general restlessness. The observations were based on a criterion of typically aggressive behaviours, which were put forward in statements on the Buss & Perry Aggression Questionnaire. These included verbal abuse and swearing, physical aggression, shouting or raised voice, threatening gestures, insults, hostility, restlessness, taking charge too much and oversensitivity or defensiveness.
These categories were placed on a table, along with each participant’s number and the behaviours were ticked if the participant displayed any of the behaviours. Thankfully, throughout the experiment, no group displayed any physically aggressive behaviour.
4.1 Discussion

The main aim of this study was to compare the effect of violent and non-violent video games on aggressive behaviour in adolescent males. The study involved the participants taking the Buss & Perry Aggression questionnaire, then being divided up into a violent gaming or non-violent gaming group and playing either of the chosen games for approximately 20 minutes. Each group then took part in a team building exercise, and finally they retook the Aggression Questionnaire. The results showed that there was significant difference in aggression between the two groups before and after video game intervention.

4.2 Hypotheses

Consequently, a number of hypotheses were formed. The first hypothesis stated that the group playing the violent video games would be more aggressive when taking part in the team building exercise. The second, that the group playing the non-violent video game would be more aggressive when taking part in the team building exercise. The third and final hypothesis, that neither the violent or non-violent groups will be aggressive when doing the team building exercise. The results of the current study, can confirm the third hypothesis, that neither groups will be aggressive when doing the team building exercise. Despite aggression levels staying rather similar before and after the experiment, according to the Buss & Perry Aggression Questionnaire, research done by Provenzo (1991) would suggest that violent video games condition children and adolescents to view the world the same way they would on a computer screen and assuming that violence, sexism and racism are advocated in real life.

Additionally, Anderson’s General Aggression Model suggests that aggression is the result of specific schemas or representations located in memory that are related to aggression. Therefore, the more often these schemas are activated by violent media, the more aggressive
an individual becomes and repeated exposure contributed to the development of an aggressive personality. The GAM proposed that repeated exposure to violent media results in hostile social interaction schemas, and that aggressive responses to social interactions and in turn more aggressive individuals. The current study measures participants’ exposure to just 20 minutes of video games. Perhaps if the participants had more prolonged exposure to the games, the results of the Aggression Questionnaire may have fluctuated more after the experiment. Also, if the participants of the study had never been exposed to video games before, the results of the Aggression Questionnaire after the experiment may have been higher than the results of the questionnaire before the experiment.

Another potential reason for the results of the current study is that the results of an aggression questionnaire is not enough to measure aggression levels. A study done by Goodson and Pearson (2009) looked at EEG results of people playing a violent game, and found that there was a surge in the area of the brain that is responsible for planning and decision making. However, Goodson et al. (2009) found that there was a generally lower response when shooting and killing was involved. These researchers concluded that this was because participants did not have experience handling a gun so they were detached from the experience. However, when the participant had been killed themselves, there was a surge in the area of the brain responsible for emotional processing and personal loss. This would suggest that situations that can induce an emotional response in real life can also result in a similar response when they are created within the gaming environment. The current study had similar results, in that the participants had previous exposure to killing in a game that they had possibly become desensitised to it.

Despite the results of the current study being insignificant, a relationship was observed between the behaviour of the participants while playing the game and their
behaviour while taking part in the team building exercise. Participants in the violent group displayed overconfidence and showing off, while they were winning, or they often shouted if something went wrong. Similar behaviours were observed when they took part in the team building exercise. Participants often took over when they had seen the sculpture, because they were confident that they could replicate it themselves. Similarly, participants often shouted at or insulted each other in frustration when they were unable to complete the task. Mimicry was observed throughout the experiment. Bandura’s Social Learning Theory (1986) related to this observation in that it theorises that exposure to violent video games would evoke behavioural mimicry, reinforce existing aggressive habits, and increase internal arousal. This internal arousal could be interpreted as anger, which increases the chances of aggression occurring.

In a study by Kollstedt (2004) on the effects of graphical quality on aggression in violent video games suggests that violent video games increase levels of aggression in some players. This study aimed to focus on how the games appearance affects aggression levels by having half the participants play Call of Duty: Ghost, in a low graphic setting, while playing on a computer, and the other half, playing on a high graphic setting, on an Xbox 360. Pre-existing levels of aggression were measured using an aggression questionnaire which was administered before play. Results found that the frustration levels of the two graphical conditions were so similar that any differences in aggression were not caused by participant’s frustrations. Similar results were found in the current study that results of the Buss & Perry Aggression Questionnaire varied very little, despite a five week gap between the initial questionnaire administration and the experiment. Perhaps, this was a result of participants desensitisation to violent games as 88% of participants admitted to playing various video games on a regular basis.
A COMPARISON OF THE EFFECTS OF VIOLENT AND NON-VIOLENT VIDEO GAMES ON AGGRESSIVE BEHAVIOUR IN ADOLESCENT MALES

Results of a study by Funk, Buchman, Jenks, and Bechtoldt (2003) on playing violent video games, desensitisation and moral evaluation in children and relationships between short-term and long-term exposure to violent video games and desensitisation, showed similar results to the current study. The overall result of their study shows that, over a long period of time, exposure to violent video games may be associated with lower empathy in some children, this being an indication of desensitisation. They also found that not all children who play violent video games negatively impacted. This may be because they are individuals with more trait aggressiveness. In addition, children with problems with emotional regulation or become frustrated easily are more inclined to be negatively affected by violent video games. Interestingly, short-term exposure to violent video games did not affect children’s ability to respond in an empathic or aggressive manner to the scenes. The current study may benefit from carrying out the experiment over a long period of time, to see if long-term exposure had an effect on the result. However, both studies resulted in similar findings, that although exposure to violent video games may be associated with lower empathy or, in this case, a decreased ability to work in a team, these results do not apply to all children.

4.3 Limitations

A number of limitations and weaknesses to the study were found while carrying out this research. A larger group of participants would have been preferred, however due to the age restrictions to the study, only a small number of Transition year students could take part. The school also could not allow the senior years take part, as they were in the process of preparing for exams, and could not miss class. A different method for how the team building exercise was measured would have been preferred, as the observations were not valid to analysis through SPSS. Despite the school offering a teacher to act as an independent
observer, due to various school activities and scheduling clashes on the days the experiment was carried out, no teacher was available. The study would have benefited from the additional feedback of an independent observer as they could provide a more objective account of the exercise. Additionally, a longer amount of time to carry out the research would have been favourable. For example, if the participants were available for a longer period of time, the experiment could have been carried out a number of times to measure the results over a longer time frame. Participants who were less familiar with using an Xbox 360, or the chosen games could have benefited to a short period of time here they played the games tutorial in order to become accustomed to playing the game. The research of the current study may have differed if the participants had never been exposed to any type of video games, however samples like that are very difficult to access.

4.4 Future Research

Future research still needs to examine how competitiveness, while playing video games, leads to frustration, which in turn inhibits gamer’s team work skills. Such research could show how team work is affected while playing the game, or whether, after long term exposure, team work is affected in everyday life. Despite the sheer amount of research related to video game exposure and heightened aggression levels, research has yet to come up with a definitive result on how this exposure truly affects people. Future research could benefit from establishing a longitudinal study, where participants who had never been exposed to video games, play them on a regular basis while EEG takes measurements, physiological arousal is measured, and participants take an aggression questionnaire as well as a competitive reaction time task. These results could be correlated over a ten year period and this may find the true effect of video game exposure on aggression levels.
4.5 Conclusion

The study found no significant result between exposure to violent or non-violent video games and how they affected adolescent males’ ability to work in a team. The results do not fit in with the hypothesis that the group playing the violent video game would become more aggressive when taking part in the team building exercise. However, mimicked behaviours were observed when participants were playing the game, followed by the team building exercise. Results of this study thus suggest that violent video games do impact on behaviour; however, further research is needed to elucidate the precise mechanisms of this relationship.
A COMPARISON OF THE EFFECTS OF VIOLENT AND NON-VIOLENT VIDEO GAMES ON AGGRESSIVE BEHAVIOUR IN ADOLESCENT MALES

References


Goodson S. & Pearson, S., There is more to video games and aggression than violent content, proceeding of the Annual British Psychological Society Conference, 2009.


APPENDICES

Appendix 1

Information Sheet for Students

A Comparison of the Effects of Violent and Non-violent Video Games on Aggressive Behaviour in Adolescent Males

My name is Caoimhe Byrne and I am conducting research in the Department of Psychology that explores video game induced violence in adolescent males, and whether their ability to work in teams is affected. This research is part of my Final Year Project and will be submitted for examination.

You are invited to take part in this study and participation involves a number of steps.

Step 1: Fill out Aggression questionnaire and gaming skills survey
Step 2: Play assigned game with assigned group for approximately 20 minutes
Step 3: Carry out team building exercise
Step 4: Retake Aggression Questionnaire

While the survey asks some questions that might cause some minor negative feelings, it has been used widely in research. If any of the questions do raise difficult feelings for you, my contact information, as well as my supervisor’s information and the information of support services Aware and the Samaritans have been provided should you feel the need to contact us.

Participation in this study is completely voluntary so you are not obliged to take part. Participation is also anonymous and confidential. You can also withdraw from the study at any time without providing a reason.

The questionnaires will be securely stored and data from the questionnaires will be transferred from the paper record to electronic format and stored on a password protected computer.

It is important that you understand that by completing and submitting the questionnaire that you are consenting to participate in the study.

Should you require further information about this study, or it has affected you, please contact:

Caoimhe Byrne email: 10039674@mydbs.ie
Aoife Cartwright email: aoife.m.cartwright@gmail.com
Appendix 2

Consent Form for Students

A Comparison of the Effects of Violent and Non-violent Video Games on Aggressive Behaviour in Adolescent Males

I have read and understood the attached Information Leaflet regarding this study. I have had the opportunity to ask questions and discuss the study with the researcher and I have received satisfactory answers to all my questions.

I understand that I am free to withdraw from the study at any time without giving a reason and without this affecting my training.

I agree to take part in the study.

Participant’s Signature: ______________________________ Date: __________

Participant’s Name in print: __________________________
Appendix 3
Information Sheet for Caregivers

A Comparison of the Effects of Violent and Non-violent Video Games on Aggressive Behaviour in Adolescent Males

What is this study about?

This study aims to find out whether Xbox games leads to aggression in adolescent males, in turn affecting their ability to work in a team. I am interested in finding out if the type of games young males play causes them to be more aggressive within their teams.

Who are the study researchers?

Caoimhe Byrne, a final year Psychology student in Dublin Business School. The supervisor of this project is Aoife Cartwright. Email: aoife.m.cartwright@gmail.com

What happens if I agree to my child taking part?

If you agree to allow your child take part, you will be asked to sign a consent form so your child can continue in the study. Any child who does not return the signed consent form with not be allowed participate. If you or your child wishes to withdraw from the study at any time, even after consent forms have been signed, they are free to do so at any time.

What does the study involve?

Once your child returns the consent form that you have signed, and the one they have signed they are free to continue on in the study. The first part of the study involves filling out two questionnaires. The first is called the Buss & Perry Aggression Questionnaire. Your child will also complete this questionnaire after they finish their final task. The before and after results with be compared to see if there is a change in your child’s aggression levels. The second survey is a gaming skills questionnaire. This will show how skilled, and how often your child plays Xbox or PlayStation.

The second part of the study involves your child playing one of two games, Halo: Reach or Fifa15, in a group of 4, for approximately 20 minutes. Groups will be decided based on the results of the gaming skills questionnaire and cannot be changed. Once your child finishes playing their game, the will play a team building game called Sneak Peek. It involves your child aiding their team in recreating a hidden sculpture within a certain time. When this is over, your child will retake the Buss & Perry Questionnaire. Then the experiment is over. It will take approximately 1 hour to complete.

What will happen to the information?

All information will be stored, on a computer and used for the purpose of the research only. In addition, all questionnaires will be coded, to further protect your child’s identity. No child will be identified in anything that is published from this study.

If you have any queries or require further information, please contact:

Caoimhe Byrne email: 10039674@mydbs.ie
Appendix 4

Caregiver Consent Form

Title of Study: A Comparison of the Effects of Violent and Non-violent Video Games on Aggressive Behaviour in Adolescent Males

Researcher: Caoimhe Byrne, student researcher, email: 10039674@mydbs.ie

Aoife Cartwright, Supervisor, email: aoife.m.cartwright@gmail.com

Caregiver’s Name: __________________________________________________________

Child’s Name: ___________________________________________________________

I confirm that I have read and understood the Information Leaflet for Parents for the above research study and have received an explanation of the nature, purpose and duration of the study. I understand what my child’s involvement will be.

I have had time to consider whether I want my child to take part in this study. Any questions have been answered satisfactorily and I have explained this study to my child and I am happy that he understands what is involved.

I understand that my child’s participation is voluntary (that my child and I have a choice as to whether she/he participates) and that my child is free to withdraw at any time if she/he chooses to do so.

I understand that the information collected may be presented and/or published in academic journals and at conferences, but that no child will be identifiable from the information.

I agree for my child to take part in the above study.

……………………………….. ……………… ……………………………………..

Name of Caregiver (in block letters) Date Signature
Appendix 5

Gaming Ability Scale

<table>
<thead>
<tr>
<th>Name: ____________________________</th>
<th>Age: ____________</th>
</tr>
</thead>
</table>

Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items (Please circle the answer while most applies to you).

1. I play computer games often.  [ ] 1. Extremely uncharacteristic of me
   [ ] 2. Uncharacteristic of me
   [ ] 3. Uncertain
   [ ] 4. Characteristic of me
   [ ] 5. Extremely characteristic of me

2. I am very comfortable playing computer games.  [ ] 1. Extremely uncharacteristic of me
   [ ] 2. Uncharacteristic of me
   [ ] 3. Uncertain
   [ ] 4. Characteristic of me
   [ ] 5. Extremely characteristic of me

3. I am an expert in most games.  [ ] 1. Extremely uncharacteristic of me
   [ ] 2. Uncharacteristic of me
   [ ] 3. Uncertain
   [ ] 4. Characteristic of me
   [ ] 5. Extremely characteristic of me

4. How many hours a week do you play Xbox or Playstation?  [ ] 1 hour or less
   [ ] 2-4 hours
   [ ] 4-6 hours
   [ ] 6-8 hours
   [ ] 10 hours or more

5. I am unsure of what to do when playing computer games.  [ ] 1. Extremely uncharacteristic of me
   [ ] 2. Uncharacteristic of me
6. I am very uncomfortable playing computer games.  

|---|-----------------------------------|--------------------------|-------------|------------------------|----------------------------------|

7. I play computer games sometimes, but often have to ask for help.  

|---|-----------------------------------|--------------------------|-------------|------------------------|----------------------------------|

8. Tick all the games you have played.  

- Call of Duty: Ghost  
- Halo: Reach  
- Fifa: 15  
- Minecraft

9. How often have you played them?  

- Everyday  
- Once a week  
- Once a month  
- Once every three months  
- Once ever
Appendix 6

Buss & Perry Aggression Questionnaire

Name: ___________________________  Age: __________________

Using this 5 point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you. Please circle one.

<table>
<thead>
<tr>
<th></th>
<th>Extremely Uncharacteristic</th>
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<tr>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Once in a while I can't control the urge to strike another person. [1 2 3 4 5]
2) Given enough provocation, I may hit another person. [1 2 3 4 5]
3) If somebody hits me, I hit back. [1 2 3 4 5]
4) I get into fights a little more than the average person. [1 2 3 4 5]
5) If I have to resort to violence to protect my rights, I will. [1 2 3 4 5]
6) There are people who pushed me so far that we came to blows. [1 2 3 4 5]
7) I can think of no good reason for ever hitting a person. [1 2 3 4 5]
8) I have threatened people I know. [1 2 3 4 5]
9) I have become so mad that I have broken things. [1 2 3 4 5]
10) I tell my friends openly when I disagree with them. [1 2 3 4 5]
11) I often find myself disagreeing with people. [1 2 3 4 5]
12) When people annoy me, I may tell them what I think of them. [1 2 3 4 5]
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>13)</td>
<td>I can't help getting into arguments when people disagree with me.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14)</td>
<td>My friends say that I'm somewhat argumentative.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15)</td>
<td>I flare up quickly but get over it quickly.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16)</td>
<td>When frustrated, I let my irritation show.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>17)</td>
<td>I sometimes feel like a powder keg ready to explode.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18)</td>
<td>I am an even-tempered person.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>19)</td>
<td>Some of my friends think I'm a hothead.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>20)</td>
<td>Sometimes I fly off the handle for no good reason.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>21)</td>
<td>I have trouble controlling my temper.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>22)</td>
<td>I am sometimes eaten up with jealousy.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>23)</td>
<td>At times I feel I have gotten a raw deal out of life.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>24)</td>
<td>Other people always seem to get the breaks.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>25)</td>
<td>I wonder why sometimes I feel so bitter about things.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>26)</td>
<td>I know that &quot;friends&quot; talk about me behind my back.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>27)</td>
<td>I am suspicious of overly friendly strangers.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>28)</td>
<td>I sometimes feel that people are laughing at me behind me back.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>29)</td>
<td>When people are especially nice, I wonder what they want.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
## Appendix 7

**Aggression Observation**

<table>
<thead>
<tr>
<th>Participant No:</th>
<th>Group No:</th>
</tr>
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<tbody>
<tr>
<td>Verbal Abuse</td>
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</tr>
<tr>
<td>Physical Aggression</td>
<td></td>
</tr>
<tr>
<td>Shouting</td>
<td></td>
</tr>
<tr>
<td>Swearing</td>
<td></td>
</tr>
<tr>
<td>Threatening gestures</td>
<td></td>
</tr>
<tr>
<td>Insults</td>
<td></td>
</tr>
<tr>
<td>Hostility</td>
<td></td>
</tr>
<tr>
<td>Restlessness</td>
<td></td>
</tr>
<tr>
<td>Raised Voice/Tone</td>
<td></td>
</tr>
<tr>
<td>Taking charge too much</td>
<td></td>
</tr>
<tr>
<td>Oversensitive/Defensive</td>
<td></td>
</tr>
<tr>
<td>Other Observations</td>
<td></td>
</tr>
</tbody>
</table>
A COMPARISON OF THE EFFECTS OF VIOLENT AND NON-VIOLENT VIDEO GAMES ON AGGRESSIVE BEHAVIOUR IN ADOLESCENT MALES