Adults Who Play Violent Video Games and Their Normative Beliefs About Aggression

Ashley A. Kjos

Pacific University

Recommended Citation
Adults Who Play Violent Video Games and Their Normative Beliefs About Aggression

Abstract
Evidence regarding the relationship between playing violent video games and subsequent aggression has been mixed. This study further examined the relationship between normative beliefs about the acceptability of both physical and verbal aggression and playing violent video games. A total of 87 participants (27 males and 60 females), ranging in age from 19 to 49, completed three online surveys regarding video game use, amount of exposure to violent video games, and normative beliefs about aggression. Unlike past research, the present study did not find a relationship between exposure to violent video games and subsequent beliefs regarding the acceptability of aggression. It was found that males and females do not significantly differ in their beliefs about the acceptability of aggression. Some limitations of the present research are discussed such as limited generalizeability due to sample constraints.

Degree Type
Thesis

Degree Name
Master of Science in Psychology

Committee Chair
Dr. Paul G. Michael Ph.D., Assistant Professor

Second Advisor
Dr. Shawn E. Davis, PhD., Assistant Professor

Subject Categories
Psychiatry and Psychology

This thesis is available at CommonKnowledge: https://commons.pacificu.edu/spp/50
ADULTS WHO PLAY VIOLENT VIDEO GAMES AND THEIR NORMATIVE BELIEFS ABOUT AGGRESSION

A THESIS
SUBMITTED TO THE FACULTY
OF
SCHOOL OF PROFESSIONAL PSYCHOLOGY
PACIFIC UNIVERSITY
HILLSBORO, OREGON
BY
ASHLEY A. KJOS
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY
DECEMBER 5TH OF 2008

APPROVED: ________________________________
Dr. Paul G. Michael Ph.D., Assistant Professor

APPROVED: ________________________________
Dr. Shawn E. Davis Ph. D., Assistant Professor
Abstract

Evidence regarding the relationship between playing violent video games and subsequent aggression has been mixed. This study further examined the relationship between normative beliefs about the acceptability of both physical and verbal aggression and playing violent video games. A total of 87 participants (27 males and 60 females), ranging in age from 19 to 49, completed three online surveys regarding video game use, amount of exposure to violent video games, and normative beliefs about aggression. Unlike past research, the present study did not find a relationship between exposure to violent video games and subsequent beliefs regarding the acceptability of aggression. It was found that males and females do not significantly differ in their beliefs about the acceptability of aggression. Some limitations of the present research are discussed such as limited generalizeability due to sample constraints.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>2</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>THEORIES OF AGGRESSION</td>
<td>7</td>
</tr>
<tr>
<td>NORMATIVE BELIEFS ABOUT AGGRESSION</td>
<td>11</td>
</tr>
<tr>
<td>VIOLENT MEDIA</td>
<td>14</td>
</tr>
<tr>
<td>Television</td>
<td>14</td>
</tr>
<tr>
<td>Video Games</td>
<td>17</td>
</tr>
<tr>
<td>VIDEO GAMES AND AGGRESSION</td>
<td>20</td>
</tr>
<tr>
<td>Video Games and Normative Beliefs About Aggression</td>
<td>24</td>
</tr>
<tr>
<td>Video Games and Aggression: Gender Differences</td>
<td>25</td>
</tr>
<tr>
<td>VIDEO GAME RATINGS</td>
<td>27</td>
</tr>
<tr>
<td>METHOD</td>
<td>32</td>
</tr>
<tr>
<td>RESULTS</td>
<td>35</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>38</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>42</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>A. NORMATIVE BELIEFS ABOUT AGGRESSION SCALE</td>
<td>51</td>
</tr>
<tr>
<td>B. EXPOSURE TO VIOLENT VIDEO GAMES QUESTIONNAIRE</td>
<td>54</td>
</tr>
</tbody>
</table>
Adults Who Play Violent Video Games and Their Normative Beliefs About Aggression

On December 6th 2007, 16 year old Heather Trujillo and 17 year old Lamar Roberts were babysitting Trujillo's 7 year old sister Zoe Garcia when they hit, kicked and body-slammed the child in an attempt to re-enact various scenes from the video game Mortal Kombat. Garcia received a broken wrist, more than 20 bruises, swelling of the brain, bleeding of her neck muscles and spine, and ultimately died from her injuries. The teens faced a possible sentence of 48 years in prison if convicted of murder (Lubich, 2007).

On April 20th, 1999, Eric Harris and Dylan Klebold entered Columbine High School in Littleton, Colorado to embark on a shooting rampage that killed 13 and left 23 others wounded before turning the guns on themselves. Although it is impossible to know what exactly caused these teens to attack others, it is possible that one contributing factor was exposure to violent video games. Both Harris and Klebold spent a great deal of time playing violent video games such as Doom and Wolfenstein 3D. Harris actually created his own video game that contained characters, weapons, and situations that were eerily similar to the events that occurred during the actual shootings at Columbine (Pooley, 1999).

Are violent video games to blame for the senseless and aggressive actions taken by Trujillo and Roberts against a 7 year old or for the actions of Harris and Klebold at Columbine High School? Although many factors may have contributed to these teens acting in aggressive and violent ways, numerous researchers have suggested that violent video games are in fact related to increases in aggressive behavior and affect (Anderson & Bushman, 2001; Anderson & Dill, 2000; Anderson & Murphy, 2003; Bartholow &
Anderson, 2002; Bartholow, Sestir, & Davis, 2005; Colwell & Payne, 2000; Gentile, Lynch, Linder, & Walsh, 2004; Persky & Blaskovich, 2007; Sherry, 2001). This does not mean that playing violent video games was the only possible explanation for these teens acting aggressively but that the violent games these teens played may have been a contributing factor. These tragedies and others like them have definitely brought the spotlight to the problem of video game violence and researchers have begun to look at what effects this form of media may have on children’s and adult’s behaviors and feelings.

The research regarding aggression and violent video games is sparse but there are a growing number of researchers adding to the field of knowledge. As previously noted, there are numerous studies showing a positive relationship between aggression and violent video game play (Anderson & Bushman, 2001; Anderson & Dill, 2000; Anderson & Murphy, 2003). Sherry (2001) found an overall effect size (\(d = .30\)) suggesting there is a relationship between video game play and aggression. Although many researchers have studied actual aggressive behaviors exhibited by children and adults who play violent video games, researchers are also determining if there is a relationship between violent media and peoples’ beliefs about the acceptability of aggressive behaviors.

Huesmann and Guerra (1997) created a measure to determine children’s and adult’s normative beliefs about aggression. These researchers found that children’s normative beliefs about aggression were positively related to the actual aggressive behaviors they exhibited. Krahe and Moller (2004) studied normative beliefs about aggression and video games and found that the normative acceptance of physical aggression increased with an increase in exposure to violent video games. More research
is needed to determine exactly what relationship exists between video games and beliefs about the acceptance of violence. There is also evidence that there are gender differences in the types of aggression displayed (Anderson & Huesmann, 2003), the types and length of video games played (Colwell & Payne, 2000), and beliefs about acceptance of aggression (Krahe & Moller, 2004).

Aggression

Aggression is an attribute commonly found in animals and humans and has been present since the beginning of existence. Aggression can be defined as “behavior intended to harm another individual who is motivated to avoid that harm” (Anderson & Bushman, 2001, pg 356). This definition excludes accidental acts that lead to harm but includes intentional acts to harm even if the attempt fails. For example, it is considered an aggressive action if a person attempts to fire a gun at another person but the gun jams. Violence is defined as aggression that has extreme consequences as its goal, such as death or murder. This means that all violence is aggression but not all types of aggression are violent. Aggression can take many forms and is often used in diverse ways to achieve different outcomes. Physical aggression is the actual use of physical force upon another person to cause intentional harm, such as punching or kicking another person. Verbal aggression is the use of words to cause intentional harm, such as spreading rumors or lies about another person. Past studies have found that females are more likely to resort to verbal aggression to harm another individual while males are more likely to resort to physical aggression to harm another individual (Anderson & Huesmann, 2003). Although the definition and types of aggression can be easily understood, the mechanisms underlying aggression are still a cause of debate among psychologists and sociologists.
Theories of Aggression

There are numerous models and theories to explain how aggression develops within children and adults. Although an exhaustive discussion of all these theories is beyond the scope of this paper (see Anderson & Huesmann, 2003 and Anderson & Bushman, 2002a for more detailed information regarding theories of aggression), three theories that have been well documented in the study of aggression will be examined specifically social learning theory, script theory, and the general aggression model (GAM).

Bandura’s (1973) social learning theory suggests that people learn from one another through observational learning, imitation, and modeling. This means that people learn through observing others’ behaviors and outcomes of behaviors. For example, if a child observes a parent being physically aggressive with another individual and that parent is reinforced for this action, the child may deem this behavior as acceptable and may later be aggressive due to observing aggressive models. Bandura’s infamous bobo doll experiment (1961) demonstrated that if children witnessed an aggressive display by an adult model, they imitated the aggressive behavior when given the opportunity. In this experiment, 36 boys and 36 girls witnessed an adult act either aggressively or non-aggressively towards a bobo doll and were then observed playing with numerous toys including a bobo doll to determine what behaviors the children would imitate. The results suggested that children who viewed an aggressive model made more aggressive responses toward the bobo doll than children who viewed a non-aggressive model. Also, boys made more aggressive responses than girls overall. These results support Bandura’s
social learning theory by showing that children can learn aggression through the process of observational learning which is watching the behavior of another person.

Although most studies of the social learning theory involve determining how children develop and learn, some studies have determined how the theory applies to adult behaviors. Anderson et al. (2004) suggest that observational learning remains a powerful mechanism for acquisition of new social behaviors throughout maturity and into old age. Phillips (1974) found that the national level of suicides increased for brief periods following suicide stories being publicized in the newspaper. He concluded that suicide rates increased following publicized suicide stories because people are imitating the publicized suicide story. Phillips (1979) also showed that daily California motor vehicle fatalities increased significantly following front-page suicide stories and these results were replicated by Bollen and Phillips (1981) in Detroit. Another study by Phillips (1982) found that suicides, motor vehicle deaths, and nonfatal motor vehicle accidents all show significant increases just after a character on a soap opera commits suicide. All of the results from the previous studies cited suggest that adults may use the social learning theory to imitate aggressive acts and suicidal behaviors publicized in the media. Other theories also include observation as means of learning aggressive behaviors and thoughts.

Script theory suggests that aggressive scripts are learned through observing violent acts (Huesmann, 1986). The violent acts that lead to the formation of scripts can be executed by various people in various situations such as parents at home, strangers in public, or all forms of mass media. A script can be defined as a sequence of expected behaviors for a certain situation (Abelson, 1981). Behavioral scripts are subroutines the brain executes in a way that enables it to accomplish predictable tasks without thinking
too much about them. By rehearsing and practicing a script, the brain begins to form stronger links between situations and behaviors which enables a person to generalize this behavior to various conditions and circumstances. In other words, aggressive scripts can be learned through the observation and replication of a behavior which then becomes a well practiced routine. Aggression then becomes the reaction behavior to many types of situations and circumstances. For example, violent video games are a type of stimulus that can teach aggressive scripts which in turn develop into aggressive and reactive behavior in everyday circumstances. Laboratory evidence suggests that scripts for social behaviors are often encoded from patterns of behaviors that are observed. Just as individuals may encode a motor program for throwing a football from observing others, individuals may encode a script for hitting or kicking those who victimize them from observing video games that depict this type of aggression (Huesmann, 1988).

The general aggression model (GAM) appears to be the most unifying theory, acquiring applications from previous ideas and putting them together in a concise model. The model has four main advantages over past theories of aggression: it is more parsimonious, it is a better explanation of multiple causes for aggressive actions, it aids in the creation of interventions for aggression, and it adds insight into child development and child rearing practices (Anderson & Bushman, 2002a). GAM focuses on the person in the situation, meaning GAM explains how situational and personal variables interact to affect a person’s internal state. The internal state includes thoughts, feelings, and physical arousal. All of these influence each other and each will have an effect on an individual’s interpretation of an aggressive or violent act (Anderson et al., 2004).
GAM research has focused on what biological, environmental, psychological, and social factors influence aggression and cause aggressive behavior (Anderson & Bushman, 2002a). Researchers have found that various personal and situational factors play a role in aggressive behavior. Person factors include all characteristics a person brings to the situation such as beliefs, values, long-term goals, attitudes, personality traits, and certain genetic predispositions which can all play a role in the aggressive preparedness of an individual (Anderson & Huesmann, 2003). Situational factors include important features of the situation such as presence of provocation or an aggressive cue (Anderson & Bushman, 2001). Aggressive cues are objects that prime aggressive related concepts in memory, making aggressive actions more likely. Provocation, frustration, pain, discomfort, drugs, and incentives are all situational factors that have been shown to play a role in aggressive actions of individuals (Carnagey & Anderson, 2005). These two variables, person factors and situation factors, influence the final outcome of behavior by effecting a person’s cognitions, affect, and arousal. Although there are many situational and personal factors that can influence a person’s behavior, Huesmann, Lagerspetz, and Eron (1984) have suggested the most aggressive children will have certain characteristics. According to these researchers, aggressive children will have parents with lower education and social status, have a more aggressive mother, perform poorly in school, and will be unpopular with peers. These aggressive children will also watch more violent television programs, believe these programs portray real life, and strongly identify with the aggressive characters in the shows. The previous cited research points to numerous situational and personal factors that can influence children’s and adult’s amount of aggressive behavior.
Social learning theory, script theory, and the general aggression model all describe various ways in which aggressive behaviors may be learned and acted upon by an individual. These theories however do not necessarily take into account what an individual believes is acceptable behavior towards another individual. In order to determine what people believe are acceptable behaviors and what behaviors are intolerable and overly aggressive, researchers need to assess normative beliefs about aggression.

Normative Beliefs About Aggression

Although aggression itself can be a physical or verbal behavior that can be easily observed and assessed, peoples' normative beliefs about the acceptability of aggression may not be as explicit. A normative belief can be defined as an individual's cognition about the acceptability or unacceptability of a behavior (Huesmann & Guerra, 1997). Normative beliefs serve as guides for action, meaning they provide shortcuts in deciding how to behave in given situations. Although a person's normative beliefs may differ from what others believe is an acceptable behavior, there is usually considerable overlap between an individual's normative beliefs and the normative beliefs of relevant peers, family members, social groups, and societal institutions (Huesmann, Guerra, Zelli, & Miller, 1992; Souweidane & Huesmann, 1999). Therefore, normative beliefs about aggression are beliefs about the acceptability or unacceptability of aggression in situations, and these beliefs are influenced by a person's family, peers, and culture. Although normative beliefs about aggression are usually stable and consistent once developed, these beliefs are in a great state of flux when we are children. Huesmann and Guerra (1997) found that there appears to be no stability in children's normative
beliefs between the first and second grade and found moderate stability in the fourth grade. However, these researchers did find that even in the first grade, children's normative beliefs about aggression and their actual aggressive behavior were highly correlated. Even though children's beliefs may change rapidly, their behaviors reflect what beliefs they are endorsing at the time. So if a child accepts that aggression is a normal response, he or she will act more aggressively, but if later that same child believes that aggression is not an acceptable response, his or her aggressive behavior will decrease. There is also evidence that in elementary classrooms where peers and teachers discourage aggression, children behave less aggressively which is possibly because they have learned that aggression is an unacceptable response (Henry et al., 2000). Although normative beliefs about aggression are unstable and in flux in children, by the time adolescence is reached these beliefs are more firm and stable but still adjustable. Werner and Nixon (2005) found that adolescents who endorsed aggression as an appropriate response reported more aggressive behavior in comparison to those who believed aggression was not an acceptable behavior. It has also been shown that high levels of anger and strong beliefs supporting aggression significantly contribute to the frequency of physical aggression as well as lower endorsement of the belief that aggressive behaviors and antisocial acts are wrong (Sukhodolsky & Ruchkin, 2004). Little research has been conducted regarding adult normative beliefs about aggression but one study has found a positive correlation between adults' aggressive behaviors and their endorsement of aggression as an appropriate response (Sigurdsson, Gudjonsson, Bragason, Kristjansdottir, & Sigfusdottir, 2006). Due the instability of the normative beliefs in children and the insufficient number of studies conducted with adults, more research
needs to be conducted in order to determine what the relationship is between adults' aggressive behaviors and their normative beliefs about aggression.

Just as normative beliefs about aggression can vary depending on the age of the individual, these beliefs can also vary depending on gender of the individual. Boys and girls appear to hold differing standards when it comes to what they believe is appropriate in aggressiveness of behavior. It has been shown that the correlation between normative beliefs supporting aggression and the use of aggressive behavior is significantly higher in boys than in girls (Huesmann & Guerra, 1997; Huesmann et al., 1992). Some researchers have suggested that the gender differences seen in the attitudes related to aggression are associated with the type of aggression exhibited. Females tend to view relational and verbal aggression as a normative aggressive response while males tend to view physical aggression as a normative aggressive response (Crick, Bigbee, & Howes, 1996; Krahe & Moller, 2004). This provides additional support to the differences between males and females in not only beliefs about aggression but also in aggressive behaviors.

So far what has been discussed has been primarily concerned with what aggression is, some theories about how aggression is produced, and some of the beliefs about aggression. There are many aspects of daily existence that can perpetuate aggressive behaviors and beliefs, some of which include the various types of media which display aggressive language, actions, affects, and behaviors and the ability to access these forms of media.

*Violent Media*

Media can be viewed in many forms including newspapers, magazines, music, art, the internet, television, movies, and video games, all of which have genres that are
aggressive and violent. Exposure to violent media can increase the likelihood of aggressive behavior occurring and can influence the development of aggression related knowledge structures and aggressive personalities (Anderson & Bushman, 2001; Bartholow et al., 2005; Eron, Huesmann, Lefkowitz, & Walder, 1972; Huesmann, Moise-Titus, Podolski, & Eron, 2003). Each time a violent movie or television show is watched or a violent video game is played, aggressive scripts are rehearsed that teach and reinforce vigilance for enemies, aggressive actions against others, expectations that others will behave aggressively, positive attitudes towards the use of violence, and beliefs that violent solutions are effective and appropriate (Bushman, 1998). It has also been shown that the repeated exposure to violent video games can increase players' aggressive outlook, perceptual biases, attitudes, beliefs, and behavior (Anderson & Dill, 2000). The effects of violent media on aggressive behavior and affect have been studied for many years beginning with the popularity and accessibility of television people's daily lives.

**Television.**

The television was first introduced to Americans in 1928 and since that time almost every American home has at least one television. Just as the popularity of the television has grown over time, the programming being broadcast on the networks has become increasingly violent and aggressive since the introduction of television. Researchers began to notice an increase in the aggressive behaviors of children and launched research to determine whether viewing media violence had any effect on these behaviors. Television was not introduced to all communities at the same time so researchers took advantage of this to determine what differences existed between aggression in communities with or without television. Hennigan et al. (1982) compared
crime rates in numerous American cities in which television was introduced and in cities where television was not yet available. He found that the presence or absence of television did not significantly affect violent crime rates. Centerwall (1989a, 1989b, 1992) examined the relationship between homicide rates and the introduction of television in South Africa, Canada, and the United States. The results suggested that 15 years after the introduction of television, homicide rates for Caucasians increased dramatically in the United States and Canada. It was concluded from these various studies that the introduction of television, combined with frequent portrayals of violence, increased interpersonal violence in the United States and Canada. Although these studies attempted to determine if the introduction of television created any differences in crime rates, various researchers have also attempted to determine what relationship television viewing has on aggressive behaviors and thoughts.

Eron, Huesmann, Lefkowitz, and Walder (1972) wanted to determine if children's preferences for violent television at age eight would be positively related to adulthood aggressiveness. The researchers found that the more violent television programming preferred and viewed by males at age eight, the more aggressive their behavior was at that time and ten years later. These same effects were not found for females. These results suggest that the influence of watching violent television is not confined to only short-term effects but can influence a person's behavior for a lifetime. Another study by Huesmann, Lagerspetz, and Eron (1984) found a positive relationship between viewing violent television and aggressive behavior among boys in both Finland and the United States and among girls in the United States only. They also found that a boy's violence viewing and identification with a character is a good predictor of later aggression, while a
boy’s initial level of aggression is not a good predictor of viewing violent television and identification with characters. These results suggest that children’s viewing of violent television programs is related to aggressive behavior but aggressive children do not necessarily watch more violent television. Since the beginning of violent television research, investigators have repeatedly found that viewing violent television is positively related to increased aggressive behavior and affect among children and adults (Anderson, 1997; Bushman & Green, 1990; Bushman & Huesmann, 2001; Comstock, 1980; Huesmann et al., 2003; Josephson, 1987).

There have also been longitudinal studies conducted to determine what the long-term effects of violent television viewing are. Huesmann and Eron (1986) studied the effects of television violence in five countries: Austria, Poland, Finland, Israel, and the United States. They examined children at three times as they grew from ages 6 to 8 or from 8 to 11 years of age. The results suggested that there was a small to moderate relationship between aggression and overall exposure to television violence in all five nations. The extent to which earlier viewing of television violence predicted later aggression varied substantially between genders and among countries. A 15 year follow-up of 300 American participants suggested a delayed effect of media violence on serious physical aggression (Huesmann et al., 2003). The researchers found a significant relationship between television violence viewing during childhood and aggressive behaviors as adults in both men and women. Another longitudinal study by Johnson, Cohen, Smailes, Kasen, and Brook (2002) assessed the total amount of time people spent watching television and amount of physical aggression displayed from age 14 to age 22. The results suggested that television viewing at age 14 significantly predicted assault and
fighting behavior at age 16 and age 22. The researchers concluded that television watching may have long-term aversive effects lasting into adulthood. In fact in a meta-analysis conducted across 42 tests involving almost 5,000 participants, Anderson and Bushman (2002b) suggested that high levels of violent television viewing in childhood can promote aggression in later childhood, adolescence, and adulthood.

Although there are scores of studies suggesting that viewing violent television is related to increases in aggressive affect and behavior, other forms of media have not been as extensively researched. Additional categories of media such as music, video games, magazines, and the internet have been implicated as media that increase the aggressive behavior and affect of those who consume them. Besides television, video games have received the most attention from researchers among all forms of violent media.

*Video games.*

The video game industry has grown significantly since the introduction of *Pong*, a nonviolent game of table tennis, in 1972. Although the first video game was not violent, it did not take the industry long to determine that violent games led to increased sales. The first violent video game was *Death Race* and was released in 1976 (Gentile & Anderson, 2006). The goal of the game was to run over stick-figured pedestrians who would then scream and turn into gravestones. The public was outraged by the violent content of this game and some communities even banned its use but the controversy surrounding this game actually increased sales tenfold (Kent, 2001). This was the first indication to game developers that violence sells and this began the creation of numerous violent games. With technological advancements during the 1980s and early 1990s, video games became increasingly violent and realistic. First-person shooter games were
developed at this time which enabled the player to “see” the video game through the eyes of the character being controlled making the games more realistic and making the player feel more involved in the game (Kent, 2001). Video games also began to depict more violent images when characters were injured or killed in the game with splatters or pools of blood and extremities being removed. Not only has the amount of violence increased in the gaming industry, the overall value of the industry has increased significantly. In less than 30 years the video game industry has grown into a multi-billion dollar industry with annual sales totaling $20 billion worldwide and almost half of these sales ($9.4 billion per year) are in the United States (Carnagey & Anderson, 2004). In a recent survey of over 600 8th and 9th grade students, children averaged nine hours of video game play per week, with boys averaging thirteen hours per week and girls averaging five hours per week (Gentile et al., 2004). Due to the amount of money spent annually and the amount of time per week people spend playing video games, this form of media requires much more research in order to determine what effects these games may be having on behavior and affect. One way to determine these effects maybe to look at the differences and similarities between viewing television and playing video games.

Although television and video games have some similarities in terms of content and graphics, the differences between these forms of media are extensive and they may explain how aggressive behavior may result from certain types of media. One main difference between television and video games is that television is viewed in the third person, meaning that the viewer does not have a viewpoint from a character within the show and does not actively participate in the events taking place in the show. Most video games on the other hand can be viewed in the first person, meaning the player actually
sees the activities of the game through the eyes of a character. This first person point of view that video games utilize creates many differences between television and video games. Players of video games are active in the game having control over the actions of the characters where as viewers of television are passive and have no control over what happens to the characters in the shows being viewed. This also means that players can control the amount of violence they see and the amount of violent actions the characters exhibit in the games but in television the viewers have no control over the amount of violence involved. Television can present real people who are acting out scenes and behaviors while video games only portray animated characters whose behaviors are controlled by the player. Despite these characters being animated, the graphics on video games are becoming much more realistic every year which may increase a players involvement with the characters. Players can even create their own characters that can look identical to themselves so that players truly feel like they are in the game.

Another difference between television and video games is that viewers of television are passive spectators of the events being portrayed and are not rewarded when characters act more aggressively but players of video games are rewarded for the violent actions of characters. For example, most shooter and first-person games score how many hits or kills a player has and in most games players cannot advance until they conquer a certain character or group of characters which requires using aggressive behaviors. These rewards combined with the realism of the graphics and characters in the games could help to explain how aggression may develop and how beliefs about the acceptability of aggressive behaviors increase in video game players.
The previously discussed theories of aggression show how playing violent video games could potentially lead to aggressive behaviors of individuals. Social learning theory would suggest that while playing violent video games, players are learning aggressive behaviors through observing in the first person how the characters behave and how the characters are rewarded for violent actions. Players are more likely to repeat these behaviors because the characters in the game were not punished for the actions but were actually rewarded and the player felt rewarded by being able to continue to another level of the game therefore reinforcing the belief that aggressive behaviors are acceptable. After playing many violent games, players may begin to form scripts around what types of behaviors are appropriate for certain situations and because most video games are played in the first person these scripts have been well rehearsed while playing the game so script theory would suggest that players are more likely to react aggressively in various situations in their lives. Although theories of aggression appear to explain what effects playing video games could have on behavior, researchers are still trying to determine exactly what effects playing violent video games have on aggressive behavior and affect.

Video Games and Aggression

Many studies have been conducted in order to help explain the relationship between aggression and video games however researchers cannot seem to agree if violent-content video games have an effect on aggression. Through numerous correlational studies, various researchers have found results suggesting that violent video game play is positively related to increases in aggressive behavior and affect (Anderson & Bushman, 2001; Anderson & Dill, 2000; Anderson & Murphy, 2003; Bartholow &
Anderson, 2002; Bartholow, Sestir, & Davis, 2005; Colwell & Payne, 2000; Gentile et al., 2004; Persky & Blaskovich, 2007; Sherry, 2001). Sherry (2001) conducted a meta-analysis of studies from 1975 to 2000 to determine the effect size of the correlation between playing violent video games and aggression. He found that the overall correlation between video game play and aggression was relatively small \( r = .15 \). He also found that the overall effect size was small \( d = .30 \) suggesting there is a relationship between video game play and aggression but that this relationship is smaller than the relationship found between television and aggression \( d = .65 \). This suggests that although there is a relationship between the aggression and video games, the relationship maybe small and not as strong as other media devices.

Not every study however has found that playing violent video games increases aggressive thoughts and affect. For example, Fleming and Rickwood (2001) found that arousal and mood were negatively correlated with violent video game play suggesting that playing may lead to decreases in aggressive behavior and affect. Ferguson (2007) conducted a meta-analysis of studies completed from 1995 to 2005 to calculate an overall effect size for the relationship between violent video games and aggression and to examine whether there has been any publication bias in the research. He found that there was a positive correlation between violent video game play and aggressive behavior \( r = .29 \) and aggressive thoughts \( r = .25 \). However, the results of the meta-analysis also suggest that there is significant publication bias issues for both experimental and nonexperimental studies of aggression so that the effects found in many past studies many not be completely accurate. For example, many studies implemented measures that may not be reliable or valid for assessing aggression. Ferguson (2007) concludes that
researchers have "not provided compelling support to indicate either a correlational or causal relationship between violent game play and actual aggressive behavior" (p. 480). Obviously, this is an area that requires more research that utilizes reliable and valid measures to determine what effect, if any, playing video games has on aggressive affect and behavior.

One related area of video game research that has been the focus of attention is the relationship between the amount of time people spend playing video games and the amount of aggressive behavior and affect exhibited. As the amount of violent graphics and the popularity of video games has increased, so has the amount of time people are spending playing video games. In the mid 1980s children were spending approximately four hours a week playing video games (Carnagey & Anderson, 2004). Recent estimates of video game usage has increased significantly with 8th and 9th grade students reporting an average of nine hours a week and male college students reporting an average of twenty hours per week playing video games (Carnagey & Anderson, 2004). With the astounding quantity of time people are spending engaging in games, it is important to understand what effects the amount of time spent playing video games has on aggressive behavior.

Although many people are playing video games for extended periods of time, researchers have suggested that even short term exposure to violent video games causes temporary increases in aggression (Anderson & Bushman, 2001; Anderson & Murphy, 2003; Bartholow et al., 2005; Colwell & Kato, 2005). Bartholow, Sestir, and Davis (2005) found that participants who had more exposure to violent video games behaved more aggressively than participants who had lower levels of exposure to violent video games suggesting that the amount of time spent playing games with violent content is related to
aggressive behaviors. Researchers have also found that various traits are related to increased amount of time spent playing video games such as lower grades (Anderson & Dill, 2000), lower self-esteem and lower number of friends (Colwell & Payne, 2000), and increased hostility (Gentile et al., 2004). In fact, it has been shown that parental limits on children’s use of video games are related to decreases in fights and arguments and increases in school performance (Gentile et al., 2004). Although most research has suggested that playing violent video games even short lengths of time can cause increases in aggressive behavior and affect, Sherry (2001) suggests that playing even the most violent video games for extended periods of time may not increase aggression. He proposes that children who play games for long periods of time may transfer less aggression from the game to the external world than those who play for brief periods of time due to arousal levels decreasing over time. Evidently, the relationship between the amount of time that people spend playing violent video games and aggression is debatable and requires further evaluation.

As stated previously, video games have a component that is much different than other forms of media in that it rewards violent actions performed by the player. Unlike television, video games enable the player to control the movements of a character in a virtual world. Most video games reward players for exhibiting violent behaviors in the characters they are controlling by receiving points, achievements and/or higher status, completing levels, and winning the game. Some video games punish violent behaviors such as when innocent bystanders or “friendly”s are shot instead of the enemy which can result in the player losing points or status or having to begin the level over. Researchers have examined what effects reward and punishment of violent actions in video games can
have on later aggressive cognition, affect, and behavior. In a series of three experiments, Carnagey and Anderson (2005) found that rewarding violence in video games can increase aggressive affect, cognition, and behavior. They found that participants who were rewarded for violent actions exhibited more aggressive behaviors than participants who played the same game where violence was punished or did not occur. This suggests that the reward component that is exclusive to video game media may increase aggressive behaviors, affect, and cognitions.

Although researchers have primarily focused on whether playing violent video games that have components of control and reward leads to aggressive behaviors and affects, there is also interest in whether people who play more violent games deem aggression as an acceptable behavior.

*Video Games and Normative Beliefs About Aggression*

As stated above, normative beliefs about aggression are beliefs about the acceptability or unacceptability of aggression in situations. These beliefs are influenced by a person's family, peers, and culture which includes the media within that culture. Eron et al. (1972) found that people who watch many hours of violent television and prefer to watch violent programs do not consider the aggressive behaviors viewed on the shows as deviant. In fact, many of the participants suggested that these behaviors were appropriate ways to solve real-life problems therefore endorsing that aggression is a normal response to everyday problems. Other researchers have found that the ways in which a person is thinking and feeling are important in influencing their interest and exposure to violent games, films, and television (Sigurdsson et al., 2006). These researchers also found that people who are accepting of violence as a normal behavioral
response are more likely to expose themselves to violent forms of media. These findings suggest that peoples’ beliefs and feelings about aggression can cause them to have more or less exposure to violent forms of media and increased exposure to violent media has been shown to be related to aggressive thoughts and behaviors (Anderson & Bushman, 2001). Krahe and Moller (2004) found that the normative acceptance of physical aggression increased with an increase in exposure to violent video games. These researchers also found that for both males and females the frequency with which violent video games were played and the amount these types of games were liked were related to the acceptance of aggression as normative. This suggests that there is a positive relationship between normative beliefs about aggression and exposure to violent video games with more exposure related to increased beliefs that aggression is a normal response.

Not only are there differences in beliefs about the normality of aggression among video game players, there are also differences in video game use and aggression between males and females and differences in what games are rated.

*Video Games and Aggression: Gender Differences*

When people think of who typically plays video games, males are most likely to come to mind but females are becoming more involved in the gaming world with an estimated 40% of the gaming market being female (Oser, 2004). Researchers have found that females reported being less experienced with video games than males (Fleming & Rickwood, 2001) and in fact, males reported playing more violent video games for longer amounts of time than females (Colwell & Payne, 2000; Funk et al., 2002; Krahe & Moller, 2004). Even while playing the games, males appear to be more involved overall,
but females become more focused and involved when playing a third person rather then first person game (Farrar, Krcmar, & Nowak, 2006). While males tend to prefer video games that contain violent and aggressive content such as *Call of Duty* and *Mortal Kombat* (Funk et al., 2002), females tend to prefer games that have opportunities for social interaction, contain non-sexualized role for the female characters, and have non-aggressive content such as *The Sims* (Hartmann & Klimmt, 2006). Evidently there are differences between males and females who play video games and two areas that there are marked differences is in the amount of aggression contained in the games males and females prefer and the amount of aggression males and females display.

Males and females may respond differently to exposure to violence and aggression in video games. Arriaga, Esteves, Carneiro, and Monteiro (2006) found that playing violent video games increased the arousal levels of female participants more than male participants, but Fleming and Rickwood (2001) found that both males and females showed increased arousal levels after playing violent video games. Numerous researchers have found that males appear to be more affected by violent video games than females suggesting that males may become or be more aggressive in general and are more sensitive to aggression. (Anderson, 1997; Archer & Latham, 2004; Bartholow & Anderson, 2002; Buss & Perry, 1992). Deselms and Altman (2003) found that exposure to violence in video games decreased male participants sensitivity to violence while women participants become more sensitive to violent content after playing violent video games. Although both males and females responded to the violence they viewed in the games, this research supports the idea that male sensitivity to violence and aggression may cause them to be more affected by video games by being more aggressive in their
actions. In fact, Huesmann et al. (1992) found that boys are more physically aggressive than females and are more likely to believe that aggression is an acceptable behavior across a range of circumstances and targets.

Research has provided evidence that males may be more sensitive to aggression and more likely to behave aggressively than females. It has also been shown that males tend to prefer games with more violent content and aggression than females but one issue that has not been addressed so far is how do consumers of video games know what games are more violent than others? One way to determine what type of content and how much violence a game contains is to look at what age level the game is appropriate and what the game is rated.

*Video Game Ratings*

Rating systems are in place for most major forms of media beginning with films in the 1960s, music in the 1980s, video games in 1994, and finally television in 1996 (Funk, Flores, Buchman, & Germann, 1999). The ultimate goal of ratings is to limit the amount of access vulnerable individuals have to forms of media that contain explicit content such as sex, crude language, and violence. When video games first appeared in the United States in the 1970s, the content and graphics were not a large concern. As technology and the graphics of games have become more violent and realistic, parents and legislators began to express concern about the content within these games and pushed for access restrictions for children (Funk et al., 1999).

In 1994, the Entertainment Software Rating Board (ESRB) was established in order to assign video game content ratings which were designed to provide consumers with concise, impartial guidance about the age-appropriateness and content of video
games (Entertainment Software Association, 2006). ESRB ratings have two equal parts: rating symbols which suggest age appropriateness for the game and content descriptors which indicate elements in a game that may have triggered a particular rating and may be of concern. Upon reviewing all of released to the public, game publishers submit responses to a detailed written ESRB questionnaire the pertinent content in the video game, raters recommend an appropriate rating category and content descriptors (Entertainment Software Association, 2006). The ESRB has six different ratings that it assigns to video games which are: early childhood (EC) which is suitable for ages three and older, everyone (E) which is suitable for ages six and older, everyone ages ten and older (E10+), Teen (T) which is suitable for ages thirteen and older, mature (M) which is suitable for ages seventeen and older, and finally, adults only (AO) which is suitable for ages eighteen and older (Entertainment Software Association, 2006). There are many content descriptors that the ESRB uses when describing video games including alcohol and drugs, blood, gore, violence, language, sex, and nudity and each rating is associated with different types of content descriptors. This means that video games with higher ratings contain more violent content and therefore more content descriptors warning about what will be witnessed while playing the game.

Since the establishment of video game ratings there has been little research conducted to determine how efficient and accurate these ratings actually are but some researchers are looking into these questions. Thompson and Haninger (2001) wanted to quantify and categorize the depiction of violence, drugs and alcohol, and sex in E rated video games. As stated previously, E rated video games according to the ESRB are suitable for ages six and older. The researchers discovered that 35 of 55 (63%) games
involved intentional acts of violence for an average of 30.7% of the game time and in 33 of the games injuring characters was rewarded or required for advancement in the game. Additionally, 14 of 32 (44%) games did not receive a content descriptor of violence from ESRB when they in fact contained numerous acts of violence. The results suggest that even though E rated games have been deemed appropriate for children ages six, there is a significant amount of violence in these video games.

Following the findings of their previous research, Haninger and Thompson (2004) conducted another study in order to quantify and characterize the content in video games that are rated T (for teen). These researchers also wanted to determine if there was agreement between the ESRB content descriptors and the actual content observed in the games. The results suggested that in a random sample of 81 games that were studied, 79 involved intentional violence for an average of 36% of game play, 73 rewarded or required the player to injure other characters, 56 rewarded or required the player to kill, 34 depicted blood, 22 depicted sexual themes, 22 contained profanity, 12 depicted substances, and 1 involved gambling. The researchers' observations identified 51 instances of content in 39 games that warranted a descriptor by the ESRB where none was actually given. This suggests that although the ESRB content descriptors provide a good indication about what types of content one may observe while playing a video game, the absence of a descriptor does not mean the absence of that type of content. Similar to the results found in their study with E rated games, Haninger and Thompson’s (2004) results suggest that there is a significant amount of violence in T rated games and that not all information about the content of the game is always depicted by the content descriptors given by the ESRB.
Obviously there are some differences between the ESRB's and researchers' beliefs about what content descriptors should be included and what the ratings of certain video games should be. Funk, Flores, Buchman, and Germann (1999) wanted to determine if there were similarities between consumer's perceptions of what content descriptors and ratings of video games are and ESRB's actual content descriptors and ratings. The results suggested that when violent content was not a central theme of game or when it was prominent in the game there was strong agreement between consumers and the ESRB on ratings and content descriptors. One area where there was considerable variance between the two groups was in regards to cartoon-type violence depicted in games. Depending on the respondent's age, gender and status as parent or nonparent, consumers rated the games containing cartoon-type violence more or less violent than the ESRB.

The results of these studies together suggests that although the rating and content descriptor system used by the ESRB is helpful in determining what games may be appropriate for certain individuals, many of the games that are rated E for everyone or T for teen depict many violent acts that may not be appropriate for the age level suggested. It is also interesting to note that many players are not necessarily playing games that are appropriate for their age level either by choice or because they are unaware of what the game is rated and the content depicted in the game. It has been shown that playing M rated video games is very common among children ages 12-14 (Olson et al., 2007). M rated video games are for mature audiences only, meaning ages 17 and older, due to their prevalence of containing intense violence, blood and gore, sexual content, and strong language. Due to the increasing numbers of people who are playing violent video games,
more research needs to be conducted to determine how accurate this rating system is and how accurate players' perceptions are regarding the ratings of games being played.

The Present Research

The purpose of the present study was designed to further explore the relationship between normative beliefs about aggression and violent video game play. It was predicted that normative beliefs about aggression would increase, meaning more acceptance of aggression, with an increase in the amount of exposure to video game violence. It was also predicted that normative beliefs about aggression would increase with increases in the amount of time spent playing violent video games. Normative beliefs about aggression were predicted to increase with increases in the average rating of the top five video games played. Although some researchers disagree, there is evidence that there are gender differences in aggressive behaviors displayed and in the acceptance of aggression. Based on these results, it was predicted that there will be gender differences in normative beliefs about physical and verbal aggression with males believing that aggression in general as well as physical aggression are more normal responses while females believe that verbal aggression is a more normal response to conflicts.

Method

Participants

The sample consisted of 87 participants with 31% (n=27) being male and 69% (n=60) being female and were from various universities and surrounding communities in the Pacific Northwest. Participant's ages ranged from 19 to 49 years old with a mean of 26 years of age. Approximately 82% of the participants identified themselves as
Caucasian, while the remaining participants were relatively evenly distributed across Asians (6%), Native Americans (3%), Latinos (2%), Blacks (1%), and Others (6%).

**Measures**

The Normative Beliefs about Aggression Scale (NOBAGS) created and revised by Huesmann, Guerra, Miller, and Zelli (1992) consists of 20 items that are designed to measure adults’ perceptions of how acceptable it is to behave aggressively both under varying conditions of provocation and when no conditions are specified. The current NOBAGS scale consists of 12 items assessing approval of aggression in response to specific provocations plus 8 items assessing approval of aggression "in general" when no provocations are mentioned (see Appendix A). An example item on the scale follows: “In general, it is wrong to hit other people?” and the responses range from “really wrong” to “perfectly OK”. Huesmann et al. (1992) reported an adequate internal consistency reliability estimate for this measure (α = .86).

The Exposure to Video Game Violence questionnaire was created by Anderson and Dill (2000) in order to determine participants’ amount of exposure to video game violence and the amount of time spent playing video games. It is a 40 item scale that asks participants to name their 5 favorite games, how often they play these games, and how violent they perceive the content and graphics of the games to be (see Appendix B). A computed violence exposure score is then created by summing the violent content and violent graphics ratings and multiplying by how often participants play video games. The average of this score is then taken to determine an overall index of exposure to video game violence. An example item on the scale follows: “How violent is the content of this game?” and the responses on a Likert scale range from “1 – little or no violent content” to
Anderson and Dill (2000) reported an adequate internal consistency reliability estimate for this measure ($\alpha = .86$).

Participants were also asked for demographic information such as their age, gender, and racial/ethnic background.

**Procedure**

Participants were recruited via e-mail and fliers. Various universities were contacted via e-mail in order to ask permission to use their undergraduate and graduate students as participants in this study. Upon approval, an e-mail was then sent to students in these universities which contained an explanation of the research and a link to the survey. Flyers were also posted around college campuses, video game stores, and video game rental stores with information regarding the research and a website for the survey. The survey was administered online through a survey website. Participants read and indicated informed consent by selecting the ‘agree’ button. Participants then completed the demographic information, the NOBAGS, and the Exposure to Video Game Violence measures. After participants completed the questionnaires, they were thanked for their participation and debriefed. Everyone who participated was eligible to enter a raffle drawing for a first prize of $50 and a second prize of $25.

**Results**

The majority of participants (68%) reported playing video games for more than two years while only 25% of participants reported playing for less then six months and 7% reported playing between six months and two years of time. In an average week, 62% of participants reported playing video games less then once and 63% of participants reported the length they play video game is 0-1 hour at a time. The internal consistency
reliability estimate for the Normative Beliefs about Aggression Survey was 0.82, which is comparable with Huesmann et al. (1992) who reported an internal consistency reliability estimate of 0.86.

**Hypothesis Testing**

An independent samples t-test was conducted to evaluate whether there were gender differences in the participants' normative beliefs about aggression. It was predicted that male participants on average would believe that aggression is a more normal response than female participants. The results were not significant, \( t(80) = .588, p = .588 \) meaning that there were no differences found between males \( (M = 50.15, SD = 3.78) \) and females \( (M = 49.71, SD = 2.82) \) normative beliefs about aggression. These results had a small effect size of \( \eta^2 = .0043 \).

An independent samples t-test was conducted to evaluate whether there were gender differences in normative beliefs about physical and verbal aggression. It was predicted that male participants would believe physical aggression is a more normal response while female participants would believe verbal aggression is a more normal response. Again, there were no significant results found for gender differences in physical aggression, \( t(78) = 1.743, p = .085 \) or for verbal aggression, \( t(78) = 0.589, p = .558 \). Effect sizes of \( \eta^2 = .0375 \) and \( \eta^2 = .00443 \) were found, respectively. These results suggest that there were no differences between males \( (M = 30.88, SD = 1.56) \) and females \( (M = 30.33, SD = 1.19) \) in physical aggression or between males \( (M = 19.88, SD = 1.17) \) and females \( (M = 19.69, SD = 1.40) \) in verbal aggression.

A correlation coefficient was computed to determine if there was a relationship between normative beliefs about aggression and participant's exposure to video game
violence. It was predicted that there would be a positive correlation in that as participant’s exposure to violent video games increased, their normative beliefs regarding the acceptance of aggression would also increase. The results were not significant, $r(80) = -0.24, p = .831$ suggesting there is no relationship between the participants normative beliefs about the acceptability of aggression and their exposure to violent video games.

A correlation coefficient was computed to determine if there was a relationship between normative beliefs about aggression and time spent playing video games. It was predicted that there would be a positive relationship with increases in the time spent playing video games being related to increases in normative beliefs about aggression. Three different measures of time were used to determine what relationship, if any, existed including how long participants have been playing video games, how many times per week they play video games, and the length of time they play video games in one-sitting. All three measures of time were not significantly related to participants normative beliefs about the acceptability of aggression: length of time spent playing vide games, $r(80) = -0.05, p = .962$; the number of times per week spent playing, $r(80) = 0.108, p = .336$; and the length of time played in a sitting, $r(80) = 0.049, p = .660$.

A correlation coefficient was computed to determine if there was a relationship between normative beliefs about the acceptability of aggression and the average rating of participant’s top five played video games. It was predicted that there would be a positive relationship with increases in the average ratings of the video games being related to increases in participant’s normative beliefs about the acceptability of aggression. The results were not significant, $r(79) = .070, p = .576$ suggesting that there is no relationship
between participant’s normative beliefs about aggression and the average ratings of video games they play.

The games participants played all have ratings determined by the Entertainment Software Rating Board (ESRB). The majority of the games played were rated Everyone (45%) by the ESRB while the other games played by participants were evenly distributed between Teen ratings (28%) and Mature ratings (27%). Participants were asked to state what they believed the games they played were rated. It was predicted that participants believed ratings of video games would be lower than the actual rating of the game as determined by the ESRB. On average, 71% of participants estimated the ratings of the video games correctly, meaning participants were relatively accurate in their perception of the game ratings and therefore relative violence of the games being played.

Discussion

The results of all the analyses suggest that none of the predictions of the hypotheses in this study were supported. There appeared to be no differences between male and female normative beliefs about aggression whether that aggression was verbal or physical. It appears that in the current sample, males and females agree on the acceptability of aggressive behaviors. The results also did not support the hypothesis that there exists a relationship between normative beliefs about aggression and exposure to video game violence as other researchers have found (Krahe & Moller, 2004). The current study suggests that this relationship is absent or weak at best, meaning that adults who play violent video games may not accept aggressive behaviors and attitudes as normative. It has also been suggested by researchers that the amount of time spent playing video games is related to beliefs about the acceptability of aggression (Anderson
& Bushman, 2001; Krahe & Moller, 2004) but the present research does not support this conclusion. There was no relationship found between participants’ beliefs about the acceptability of aggression as normative and the amount of time they spent playing violent video games.

Overall, participant's beliefs about the acceptability of aggression were relatively low including beliefs about physical and verbal aggression. The participants' normative beliefs about aggression scores for physical aggression ranged from 28 to 35 with a score of 30 being the most common score while the participant's normative beliefs about aggression scores for verbal aggression ranged from 17 to 25 with a score of 20 being the most common. The actual range of scores can range from 8 to 32 for the verbal aggression scale and from 12 to 48 on the physical aggression scale. Participants on average scored in the middle on both the acceptance of physical and verbal aggression suggesting that they do not accept or reject aggression as normative. The participants' normative beliefs about aggression total scores reflect this as well. These scores ranged from 33 to 58 with a score of 50 being the most common. The actual scale can range from scores of 20 to scores of 80 so the participants on average fell right in the middle of the scale, neither supporting nor completely rejecting the acceptability of aggression as normative.

Although the results do not support the hypotheses proposed in the study, there were some interesting findings regarding the ratings and types of games participants reported playing. Participants overall exposure to video game violence score ranged from a score of 2 to a score of 62 while the exposure to video game violence scale can range from scores of 2 to scores of 98 (Anderson & Dill, 2000). The most common score
among participants in the current study was a score of 2 suggesting that the majority of participants were not exposed to violent video games. When the ratings of the games being played by participants were analyzed it was found that most participants were playing games rated Everyone and Teen (73%) while only a small proportion of participants were playing games rated Mature (27%) which are the games containing the most violent content and graphics. It appears that the sample was not representative of the population in the amount of participants who played violent video games which could explain why many of the results did not support the proposed hypotheses. It was also determined by conducting post hoc power analyses that there was not enough power to detect small effects that could account for the results from previous studies. The power analysis suggested that the sample in the current study would need to be at least doubled in size to find small to medium effects.

It was found that participants were relatively accurate in their perceptions of the ratings of the games they were playing. Participants were able to accurately estimate the ratings of video games 71% of the time suggesting that participants were aware of the violence contained in the video games and age ranges games may be appropriate for. These results are in contradiction to findings by Funk et al. (1999) who reported that participants were not accurate in their estimation of game ratings. These researchers found that participants would consistently underestimate the ratings of video games suggesting that video game players were not aware how violent the content and graphics of games are and what age groups games are appropriate for. Some of these differences in findings may be accounted for by looking at the samples used in the research. Funk et al. (1999) included fourth grade students, sixth grade students, college students, and adults
while the current sample only included college students and adults. Therefore, the past research may have found inaccuracies in the estimations of game ratings due to the inclusion of children in the sample who may not be as aware of ratings and violence within video games. The differences in the findings may also be due to video game players becoming more aware of the violence within the games they are playing from education, the media, and parental guidelines.

Limitations

There are some limitations to the current study that need to be addressed. The current study employed the use of a convenience sample by contacting communities and universities in the surrounding area to acquire a sample therefore it cannot be known how much the present sample represents the population. The results of the study suggest that participants on average did not play many violent video games suggesting that they either played mostly non-violent games or none at all. It was also noted that many participants only listed one to two video games that they enjoy playing the most suggesting that the participants in this study may not represent the population of gamers who play many different types of games with varying levels of violent content and graphics. A larger sample size with a broader range of recruiting measures could have been implemented to make the current sample more representative of the population.

Another limitation of the current study is the use of self-report measures. Participants reported their favorite video games, amount of time spent playing video games, and beliefs about aggression. It is possible that participants were not accurate in what games they played, how long they played them, and what their actual beliefs are so the results may not be completely accurate.
Another limitation of the present research is that many of the analyses were corralational in that they were detecting a relationship between variables. By utilizing a corralational design, the present study would be unable to determine if violent video games cause aggressive behaviors and actions only that they are related. Although most findings were not significant, the present research could not determine what variables were causing certain effects, just that the variables were related in some way.

Finally, the majority of studies regarding video game use and aggression are investigated with samples of children and adolescents, not adults. This makes the findings of this study extremely limited in generalizing to other populations. For example, the findings that participants in the present research were able to accurately predict ratings of video games is not completely comparable to Funk et al. (1999) who included children in his sample.

Future Research

The present research found that the sample used was too small and did not have enough power to detect small effects that past researchers have found in aggression research. Future research should use larger samples to ensure greater power in order to find the smallest effects possible. Future research should also utilize more diverse samples to include children, adolescents, and adults in order to test hypotheses regarding violent video game play and aggression. By including children and adolescents, researchers would be better able to generalize the results and may find significant findings. Research has shown that increased exposure to violent video games is related to increased acceptance of aggression (Anderson & Dill, 2000). Future research should
attempt to replicate these findings and also determine what aspect of violent video game play causes people to accept aggression as a normal behavioral response.
References


Appendix A

Normative Beliefs about Aggression Scale

The following questions ask you about whether you think certain behaviors are WRONG or are OK. Circle the answer that best describes what you think. Circle ONE and only one answer.

**Suppose a young man says something bad to another young man, Tyler.**

1) Do you think it's OK for Tyler to scream at him?
   - It's
   - It's
   - It's
   - It's
   - Perfectly OK
   - Sort of OK
   - Sort of Wrong
   - Really Wrong

2) Do you think it's OK for Tyler to hit him?
   - It's
   - It's
   - It's
   - It's
   - Perfectly OK
   - Sort of OK
   - Sort of Wrong
   - Really Wrong

**Suppose a young man says something bad to a young woman.**

3) Do you think it's wrong for the young woman to scream at him?
   - It's
   - It's
   - It's
   - It's
   - Really Wrong
   - Sort of Wrong
   - Sort of OK
   - Perfectly OK

4) Do you think it's wrong for the young woman to hit him?
   - It's
   - It's
   - It's
   - It's
   - Really Wrong
   - Sort of Wrong
   - Sort of OK
   - Perfectly OK

**Suppose a young woman says something bad to another young woman, Sarah.**

5) Do you think it's OK for Sarah to scream at her?
   - It's
   - It's
   - It's
   - It's
   - Perfectly OK
   - Sort of OK
   - Sort of Wrong
   - Really Wrong

6) Do you think it's OK for Sarah to hit her?
   - It's
   - It's
   - It's
   - It's
   - Perfectly OK
   - Sort of OK
   - Sort of Wrong
   - Really Wrong

**Suppose a young woman says something bad to a young man.**

7) Do you think it's wrong for the young man to scream at her?
   - It's
   - It's
   - It's
   - It's
   - Really Wrong
   - Sort of Wrong
   - Sort of OK
   - Perfectly OK
8) Do you think it's wrong for the young man to hit her?
   It's Really Wrong, It's Sort of Wrong, It's Sort of OK, It's Perfectly OK

   Suppose a young man hits another young man, Tyler?

9) Do you think it's wrong for Tyler to hit him back?
   It's Really Wrong, It's Sort of Wrong, It's Sort of OK, It's Perfectly OK

   Suppose a young man hits a young woman.

10) Do you think it's OK for the young woman to hit him back?
    It's Perfectly OK, It's Sort of OK, It's Sort of Wrong, Really Wrong

   Suppose a young woman hits another young woman, Sarah?

11) Do you think it's wrong for Sarah to hit her back?
    It's Really Wrong, It's Sort of Wrong, It's Sort of OK, Perfectly OK

   Suppose a young woman hits a young man.

12) Do you think it's OK for the young man to hit her back?
    It's Perfectly OK, It's Sort of OK, It's Sort of Wrong, Really Wrong

13. In general, it is wrong to hit other people?
    It's Really Wrong, It's Sort of Wrong, It's Sort of OK, Perfectly OK

14. If you're angry, it is OK to say mean things to other people?
    It's Perfectly OK, It's Sort of OK, It's Sort of Wrong, Really Wrong

15. In general, it is OK to yell at others and say bad things?
    It's Perfectly OK, It's Sort of OK, It's Sort of Wrong, Really Wrong

16. It is usually OK to push or shove other people around if you're mad?
    It's Perfectly OK, It's Sort of OK, It's Sort of Wrong, Really Wrong.
17. It is wrong to insult other people?
   It's Really Wrong Sort of Wrong Sort of OK Perfectly OK

18. It is wrong to take it out on others by saying mean things when you're mad?
   It's Really Wrong Sort of Wrong Sort of OK Perfectly OK

19. It is generally wrong to get into physical fights with others?
   It's Really Wrong Sort of Wrong Sort of OK Perfectly OK

20. In general, it is OK to take your anger out on others by using physical force?
   It's Perfectly OK Sort of OK Sort of Wrong Really Wrong
Appendix B

Exposure to Video Game Violence Questionnaire

Instructions: Please think of the five video games that you have played for the greatest amount of time. Include computer, console/TV, and arcade games. Please write down the titles of these games on the blank lines below.

If you have never played a video game in your life, please check here and go on to the next questionnaire.

1) Title of your "most played" game: _____________________________.

PLEASE PRINT CLEARLY

Now, please rate each game by answering the questions that follow.

1). For the following items, rate the game you listed as your "most played" game:

a) In recent months, how often have you played this game?

Rarely 2 Occasionally 3 Often 4 5 6 7

b) How violent is the content of this game?

Little or No 2 Violent Content 3 4 5 6 7

Exremely Violent Content

c) How bloody/gory are the graphics of this game?

Little or No 2 Blood & Gore 3 4 5 6 7

Extremely Bloody & Gory

d) Which of the following categories best describes this game? Check all that apply.

Education Sports Fantasy Fighting with hands/feet Fighting with Weapons Skill

e) What is this game rated?

Early Childhood (ages 3+) Everyone (ages 6+) Everyone 10+ (ages 10+)

Teen (ages 13+) Mature (ages 17+) Adults Only (ages 18+)

**note** the title and questions a through e were asked regarding the participants next four most played games.