

Violent Video Games: The Effects of Gender Match on Levels of Aggression



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ABSTRACT

This study examined the relationship between gender and violence in video games on levels of aggression. Participants were college students; ages ranged from 18 to 46 (M = 20.74, SD = 4.82). Both passive and active aggression and attitudes towards violence were measured. Two-way analysis of variance (ANOVA) found no significance between gender-matched and gender-unmatched participants, but there was significance between violent and non-violent games, $p = .001$. The gender-unmatched group in the violent video game condition approached significance ($p = .06$); power analysis indicated that more participants were needed to achieve significance. These findings suggest that violent video games increase aggression levels.

Raise your fists and get ready to fight to the brutal finish. The battle comes alive with bone-jarring realism as you pummel your opponent and do your utmost to inflict maximum damage. Your fists are fast and your grip is strong, but will it be enough to help you dominate in the ultimate King of Iron Fist Tournament?

So begins the synopsis on the Best Buy Web site (2010) for the recent release of *Tekken 6*, part of the *Tekken* video game series. Video games have become a big hit in the recent decade because of new and exciting game consoles such as the Sony PlayStation 3, Microsoft Xbox 360, and Nintendo Wii hitting the shelves of virtually all electronic stores. Video games have reached a new level of awe. These new gaming consoles come with the technology and advancements of video graphic images that put the world's first gaming console, the Magnavox Odyssey 1972, in its place in history. Gaming today far surpasses everything that preceded it.

Every sentence in the previously quoted synopsis delineates one thing, violence. Violence is the most common theme for video games today and magazines for video games contain mostly advertisements for action and fantasy games, which are more violence-based than any other genres

(Scharrer 2004). Scharrer's research found that 55.8 percent of 1,054 video game advertisements contained at least 1 act of violence and 2.5 weapons, with guns as the most frequently occurring weapon. Past research has found that those who played a violent video game had an increase in aggressive thoughts, aggressive feelings, and heart rate (Barlett and Rodeheffer 2009). The *Grand Theft Auto* video game series by RockStar is among the most violent. The game lets the player beat, destroy, and kill anything that moves, whether it is an opponent or an innocent bystander walking down the street. Other violent games, such as *Command and Conquer* by EA Games, simulate war and allow players to build armies and subjugate nations. Due to the advancements in video graphics, the blood and gore depicted is close to that of reality. In fact, it has been indicated that the more blood shown in a violent video game, the greater increase there will be in arousal and hostility (Barlett, Harris, and Bruey 2007). Violence found in games may even be more harmful than violence in television because research has indicated that individuals playing a violent video game had more aggression than individuals watching a violent video game being played (Polman, Castro, and Aken 2008).

Violent video games allow individuals to experience a life with no punishments. It is a fantasy world that has no consequences for violence, in fact, these games reward violence. Rewards come in forms such as high scores, earning money in the game, and gaining new powers and new weapons to use. Ultimately, the highest reward is winning the game. Carnegey and Anderson (2005) found that rewarding violence in video games can increase aggressive affect, aggressive cognition, and aggressive behavior. These video games come with real-life negative effects.

Most video games include violent content and these violent games are among the games being purchased and played by youth (Gentile, Lynch, Linder, and Walsh 2004). Game ratings are set so that people can choose games that are suitable for a particular age group or audience. The Entertainment Software Rating Board (ESRB) is an organization that assigns age and content rating guidelines to computer and video games, and other entertainment software, to prevent exposure to inappropriate audiences. When parents are looking for video games for their underage children, games rated "E for everyone" would probably be the best fit. The ESRB describes games rated E as having content that may be suitable for persons aged six and older and titles in the category may contain minimal cartoon, fantasy, mild violence, or infrequent use of mild language. This rating means that even video games rated "E for everyone" can contain violent content. This oversight allows children as young as six to be exposed to some sort of violence.

Eliminating all violent video games is not necessary at this point but it is important that society, especially parents, keep an eye on the aggression that these games can produce due to excessive playing, especially in young children and teenagers. Research demonstrates that violent video games can cause aggressive behaviors. Technology and visual graphics used in the production of video games will only continue to get better and so will the graphic nature of violent video games. It would not be a surprise if this decade brings in new features in video games such as three-dimensional pictures or virtual reality simulators, making the experience that much more realistic.

Gender Differences in Gaming

Men and women are dissimilar due to different levels of hormones and interest, therefore, gender differences exist. Only a modest amount of research has been conducted to assess the effects of playing as a male or female character on aggression levels in violent video games. Easten (2006) found that females who played as a male character against a female character had significantly decreased aggressive thoughts. He also found that the presence of aggression was greater when the female participants matched themselves to the game character's gender and that fighting against a human opponent instead of the computer increased aggressive thought. His study focused solely on female participants.

The current study will further investigate the effects of using a male or female character on aggression level with both male and female participants. The present research hypothesizes that a participants who play a video game as characters who matches their own gender will have a more positive attitude towards violence, and a higher level of passive and active aggression compared with those who do not play as a character who matches their own gender.

LITERATURE REVIEW

Playing video games has become one of the favorite activities of American children (Gentile et al. 2004). There are numerous policies that have been proposed at the local, state, and national level to restrict youth access to violent video and computer games, because many parents, clinicians, researchers, and policy-makers are concerned that electronic games, especially those featuring violent content, may be harmful to youth (Olson, Kutner, and Warner 2008).

Preference

To examine young adolescents' descriptions of why they play video games, what leads them to choose games with violent content, and how they perceive the influence of games on themselves and their peers, Olson et al.

(2008) found that boys were attracted to violent video games for specific reasons, including: (a) fantasies of power and fame; (b) challenge, exploration, and mastery; (c) emotional regulation, especially coping with anger and stress; (d) sociability (cooperation, competition, and status seeking); and (e) learning new skills (particularly in the case of sports games). Cohen (2009) found that time management differences among males and females is one of the reasons boys spend more time playing video games than girls. On average, girls and women are less involved with video games than are boys and men, and when girls and women do play, they often prefer different games (Hartman and Klimmt 2006). They found that females were less attracted to competitive elements in video games and those that lacked meaningful social interaction. Violent content and sexual gender role stereotyping of game characters were the most important reasons females disliked games. Females often preferred non-violent games and games with social interactions. Funk et al. (2002) found that boys consistently had a higher preference for violent games than girls. It may also be likely that aggressive or hostile youths may be drawn to violent video games (Olson, Kutner, and Beresin 2007). Examining gaming advertisements, Scharrer (2004) found that violent content is portrayed most often in games rated “M for mature” and “T for teen,” which is consistent with the ratings of the ESRB. Most young adolescent boys and many girls routinely play M-rated games (Olson et al. 2007). Bijvank, Konijn, Bushman, and Roelofsma (2009) concluded that restrictive age labels and violent-content labels increase the attractiveness of video games, especially for boys.

Content Effects of Violent Video Games

Gentile et al. (2004) found that adolescents who exposed themselves to greater amounts of video game violence were more hostile, reported getting into arguments with teachers more frequently, were more likely to be involved in physical fights and perform poorly in school. In addition, anger significantly moderates the effect of video game violence on aggression (Giumetti and Markey 2007). Specifically, persons who were angry to begin with prior to the study were found to be aggressive and more affected by violent video games than persons who were not angry prior to the study.

Barlett and Rodeheffer (2009) conducted a research study comparing two violent video games, realistic versus non-realistic. It was found that those who played the realistic violent video game had higher heart rates and higher aggressive feelings compared with those who played the unrealistic violent video game. Another study conducted by Barlett, Branch, Rodeheffer, and Harris (2009) found that the increase in aggressive feelings and aggressive thoughts from short-term violent video game play lasted less than four minutes, whereas heart rate and aggressive behavior lasted four to nine minutes.

Carnagey, Anderson, and Bushman (2007) argue that, after violence exposure to violent video games, a decrease in heart rate and Galvanic Skin Response (GSR) were indicated when participants were exposed to real-life violence. Carnagey et al. (2007) defined “physiological desensitization” as showing less physiological arousal to violence in the real world after exposure to video game violence in the virtual world. After playing a violent video game, individuals viewed a videotape of real-life violence while their heart rate and skin responses were measured. Those who were exposed to the violent video game had a significantly lower heart rate and GSR than those who did not play a violent video game, which suggests that violent video games may numb the effects of real-life violence.

New generation violent video games contain substantial amounts of increasingly realistic portrayals of violence (Weber, Ritterfeld, and Mathiak 2006). New gaming options offered by many games today enable people to create an in-game character. Fischer, Kastenmuller, and Greitemeyer (2009) conducted research using gaming options that allow participants to create an in-game character. Results concluded that participants who played a violent video game and created their own in-game character had a greater increase in aggression level than participants who played the same violent video game but did not create a personalized character.

Barlett, Harris, and Bruey (2007) conducted a study investigating the amount of blood present in violent video games. The game *Mortal Kombat: Deadly Alliance* has a game option that allows players to adjust blood exposure during game play. The study concluded that those who played in the maximum and medium blood-exposure conditions had a significant increase in heart rate and a higher level of hostility than those who participated in the low- and no-blood-exposure conditions.

METHODOLOGY

Recruitment of participants was allowed by the researcher after a Human Subjects Committee approved the experimental protocol. A total of 36 participants (15 men and 21 women, ages ranging from 18 to 46; $M = 20.74$, $SD = 4.82$) were recruited through the Psychology Department of California State University, Sacramento. Their required participation in research earned them credit towards course work. The study had a 2 (type of game: violent versus non-violent) \times 2 (gender: matched versus unmatched) between-subjects design. Participants were randomly assigned to one of the four experimental conditions.

Materials

The independent variables were video games and gender. The violent video game that was used in this study was *Mortal Kombat: Unchained* by Midway. This video game was chosen for this study because of its ESRB game rating of “M for mature” for blood and gore and intense violence. The participants were randomly assigned to play as a male character or a female character; they were not allowed to choose the gender of their character. The game simulates fighting against opponents using weapons and special combination moves. Matches were best out of three and opponents were randomly selected. The non-violent video game used was *Hot Shots Golf: Open Tee 2* by Sony. This game was chosen for its game rating of “E for everyone.” Participants playing *Hot Shots Golf* were randomly assigned to play as a male or a female character, the same as for the violent video game. This game simulates playing golf. The matches consisted of eight rounds but if three rounds were won in a row, victory was awarded. Opponents were also randomly selected.

The dependent variables were attitudes towards violence and both passive and overt aggression. Attitudes towards violence were measured using the Attitudes Towards Violence Scale (Anderson, Benjamin, Wood, and Bonacci 2006), which is a 39-item questionnaire that asks participants to respond to statements such as “War is often necessary” on a 1 (strongly disagree) to 5 (strongly agree) Likert-type scale. The Attitudes Towards Violence Scale is broken up into four subscales: War (12 items; $\alpha = .79$), Penal Code Violence (7 items; $\alpha = .83$), Corporal Punishment of Children (8 items, $\alpha = .87$), and Intimate Violence (12 items, $\alpha = .89$). The present research used all four subscales together instead of separately. Passive aggression was measured using a questionnaire developed by the researcher. This 19-item questionnaire asked participants to respond to statements such as “I feel the urge to cut off people when they are driving slowly” on a 1 (strongly disagree) to 5 (strongly agree) Likert-type scale. Two of the items were reverse coded, meaning that lower scores indicated higher passive aggression. Cronbach’s alpha indicated an acceptable internal consistency reliability, $\alpha = .81$. Overt aggression was measured using chili sauce as demonstrated by previous research (Fischer et al. 2009). In Fischer’s study, participants were asked to also participate in a marketing study involving a new brand of chili sauce. Participants were told that this new chili sauce was extremely hot and that 84% of college students did not like the taste of the chili sauce. They were then asked to pour an undetermined amount into a cup for a person to taste.

Procedure

Participants in the present study were college students recruited from California State University, Sacramento. They were asked to devote 30 minutes of their time to this experiment. The participants were randomly

assigned to use Sony's handheld game system, PlayStation Portable, to play a violent video game (*Mortal Kombat*) with a male character or with a female character, or to play a non-violent video game (*Hot Shots Golf*) with a male character or with a female character.

Participants were told that the study was for marketing purposes only. Deception was necessary in order to keep the purpose of the study hidden. All participants had access to each video game's booklet, which provides a guide to playing the video game. After game play, participants were asked verbally how much they liked or disliked the video game. All participants were reassured that their results would remain confidential and that they would receive any follow-up information they might request from the researcher. All participants filled out a general demographic questionnaire and answered a survey assessing their attitudes towards violence and a survey assessing individual characteristics after playing a violent or non-violent video game.

After playing one of the video games, the Attitude Towards Violence Scale (Anderson et al. 2006) was used to assess individual attitudes towards violence and the researcher-developed questionnaire was used to assess passive aggression. Responses to the items were assessed on a five-point summative response scale using the end-of-scale anchors of "I disagree" and "I agree." After the initial experiment, participants were then asked to participate in a marketing study that involved tasting chili sauce as used in a previous study demonstrating aggression levels after playing a video game (Fischer et al. 2009). In reality, no one was actually asked to taste the sauce nor were they given any chili sauce to consume. This activity assessed levels of overt aggression. The answers to the questionnaire were recorded and the amount of chili sauce poured into a cup by each participant was measured in grams.

RESULTS

The results of the 2 (type of game: violent versus non-violent) x 2 (gender: matched versus unmatched) between-subjects design analysis of variance (ANOVA) did not find significance for the match main effects or the interaction effect between game and match conditions. The match condition did not have a significant effect on active and passive aggression or attitudes towards violence. The type of game played had no effect on passive aggression and attitudes towards violence. However, analysis did reveal a significant main effect for active aggression ($M = 27.86$, $SD = 18.55$) in game $F(1, 32) = 13.31$, $p < .05$, $\eta^2 = .29$. Figure 1 shows the difference in the amount of chili sauce poured between the players of the two different games. The violent video game group poured 17.38 grams more chili than the group that played the non-violent game; significant at $p = .001$. Individuals

who played the violent video game were more actively aggressive than those who played the non-violent game, demonstrated by the large amount of chili sauce they poured.

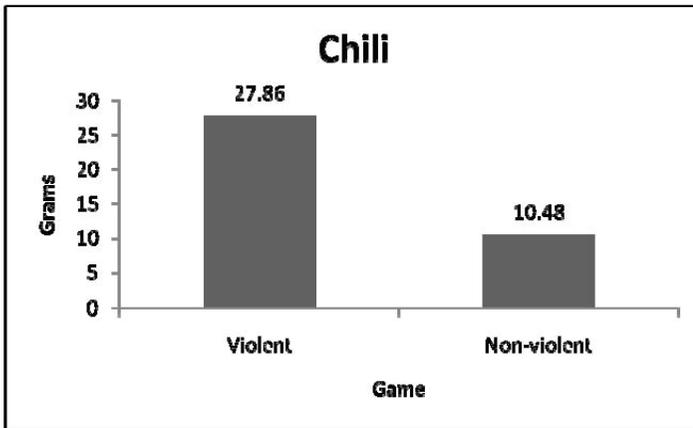


Figure 1. The violent video game group demonstrated a higher level of active aggression than the non-violent video game group.

In the violent game condition, the amount of chili sauce poured was explored to assess the nature of its significance. Pair-wise comparisons did not find a significant difference in the amount of chili sauce that was poured between groups who were gender matched and unmatched in the violent game condition, although it was very close with the groups that were gender unmatched, pouring more, $p = .06$. This result suggests that a trend may be present. Power analysis was conducted to assess if the non-significant finding was due to the lack of participants in the experimental condition. The result indicated that in order to get a power of .8 or above and achieve statistical significance, each experimental group would need to have twelve participants or more.

Results were further explored through simple main effects to determine if there were differences between individuals who played the violent game within the matched condition. Interestingly, when gender was added into the interaction effect along with game and match, there were differences between males. Those who were gender unmatched were more aggressive, meaning they poured more chili sauce than those who were gender matched, $p = .03$. Differences between females who played as gender matched and unmatched were not statistically significant.

DISCUSSION

The current study investigated the effects of playing a video game as a character who is gender matched on levels of aggression during violent video game play. Fantasy and adventure games, which are mostly violent, are the most common theme for video games today (Scharrer 2004). Past research has indicated that violent content in video games increases aggression in individuals who engage in violent video game play. The hypothesis being tested in the present study was that participants who played a violent game and who matched their gender with that of the game's character would have a higher passive and overt aggression level, and a more positive attitude towards violence. Analysis indicated that the gender matching had no significance on passive and active aggression and attitudes towards violence. The type of video game had no effect on passive aggression or attitudes towards violence. However, the type of game had an effect on active aggression levels. Participants who played the violent video game, *Mortal Kombat*, demonstrated a higher active aggression level than those who played the non-violent game, *Hot Shots Golf*. Participants in the violent video game condition poured significantly more amounts of chili sauce than those who were in the non-violent video game condition. Although the violent video game produced a higher aggression level in individuals, there was no statistical significance among the match conditions within the violent game. However, it should be noted that males who played the violent game and were gender unmatched demonstrated a higher aggression level than males who played the same game but were gender matched.

Results of the current study are consistent with past research. The chili sauce experiment had the same effect in the present study as for the past study conducted by Fischer et al. (2009). Those who played a violent video game poured out significantly more chili sauce for someone to taste than those who played a non-violent game.

Easten (2006) concluded that females who played as gender-matched game characters exhibited more aggression than those females who played as gender-unmatched game characters. The current study did not find such significance between female participants. In his research, Easten had control over the gender of the participant's opponents in the game. Easten's female participants also had a lower aggression level when they played as a male character facing off against a computerized female character. Reasons for the different outcome from Easten's study could be that the current study did not have control over each participant's opponents. Opponents were randomly selected by the game software and participants played the video games in an isolated room with no other persons present. An expansion of the current

study would need to have control of computer opponents in order to add contributions to Easten's study. An experiment using the same protocol as Easten's but with only male participants would test if gender matched conditions are the same for both genders.

A possible confound for why passive aggression and attitudes towards violence did not achieve significance in the violent video game condition is that participants may have had an idea of what the study was predicting even though participants were told that the entire experiment was for marketing purposes only. The passive aggression questionnaire as well as the Attitudes Towards Violence Scale both had statements that asked individuals to rate themselves on whether they agreed or disagreed with their own characteristics of violent acts. The measurement was apparent, so participants may have inhibited their true feelings and altered their responses. A reason why the chili sauce experiment was successful at achieving significance in the game condition is that the purpose of the chili sauce and what was being measured were not immediately clear.

LIMITATIONS

The lack of participants was a major limitation in the current research. Participants were drawn from a pool of students enrolled in Introduction to Psychology courses at California State University, Sacramento and, because there were more researchers conducting studies than there were students, the appropriate amount of data was not acquired. There were also more female student than male student participants, so the gender variable was unequal.

FUTURE RESEARCH

Future research will need to pay special attention when experimenting with violent video games and using questionnaires to measure aggression levels. Asking participants to fill out aggression questionnaires will most likely reveal the purpose of the study. A possible solution would be to add in random questions that ask about topics other than aggression. In addition, more studies using children and teens as participants may be more beneficial because the developmental stage may help researchers understand if aggression levels change over time.

CONCLUSION

The findings of the current study suggest that violent video games increase aggression and that the gender of the game characters may play a role, depending on the gender of the player. The trend for individuals playing

violent video games is not decreasing, but rather is increasing due to exciting new technological advancements and creativity. In addition, it is important to remember that not all non-violent games are appropriate for everyone as defined by the ESRB because even non-violent games can contain acts of violence. It is important that attention is given to specific contents of violent video games especially by parents.

Three-dimensional televisions made their debut this year. Nintendo will be releasing the highly anticipated, first three-dimensional handheld game in the coming months. This year will mark the next generation of video games. The effects of those games on levels of aggression need further study because the next generation of our youth may become more aggressive from playing video games. Therefore, more research needs to be devoted to violent video games and its association with aggression in school-aged children.

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