INTERACTIVE EFFECTS OF MODERATORS ON AGGRESSION FOLLOWING VIOLENT VIDEO GAME PLAY

By Sharayah A. Preman

The present research examined how the ability to choose a heroic or deviant character role to play in a violent video game affects participants' subsequent aggression as a function of fantasy proneness. Participants were randomly assigned to play a violent game in one of four conditions (choice-heroic, choice-deviant, assigned-heroic, assigned-deviant). Participants in the assigned conditions played as either a heroic or deviant character. An induced compliance manipulation was used to create the perception of game choice by presenting half of the participants with the option to choose which role they wished to play. Immediately after violent game play, participants completed a measure of behavioral aggression (Taylor's Competitive Reaction Time Task) disguised as a multiplayer game. Results indicate that character role influenced aggression in both choice and assigned conditions. Furthermore, the ability to choose a role interacted with type of character role for those who displayed a higher degree of fantasy proneness. Those who were higher in fantasy proneness and had choice displayed a stronger character role effect on aggression than did those with no choice and lighter fantasy proneness. The character role effect for those lower in fantasy proneness was weakened and appeared relatively unaffected by whether they were able to choose the game.

INTERACTIVE EFFECTS OF MODERATORS ON AGGRESSION FOLLOWING VIOLENT VIDEO GAME PLAY

by

Sharayah A. Preman

A Thesis Submitted
In Partial Fulfillment of the Requirements
For the Degree of

Master of Science-Psychology

at

The University of Wisconsin Oshkosh
Oshkosh WI 54901-8621

May 2015

COMMITTEE APPROVAL

_____ Advisor

5/12/2015 Date Approved

_____ Member

5/12/2015 Date Approved

_____ Member

5/12/2015 Date Approved

DEAN OF GRADUATE STUDIES

_____

5/14/2015
Date Approved

FORMAT APPROVAL

_____

5/13/15
Date Approved

ACKNOWLEDGMENTS

A special thanks goes out to Shelby Kelso for her help with data collection and keeping my sanity in check. To Ceily and Jordan, for telling me I could do it. And Dr. David Lishner, for helping me realize I can be a researcher.

TABLE OF CONTENTS

LIST OF TABLES vi

LIST OF FIGURES vii

INTRODUCTION 1

- Character Role 2
- Choice 3
- Fantasy Proneness 4

THE PRESENT RESEARCH 6

METHOD 9

- Participants 9
- Procedure 9
  - Manipulation of Character Role 10
  - Measure of Aggression 11
  - Perceptions Questionnaire and Fantasy Scale 12

RESULTS 15

- Manipulation of Character Role 15
- Manipulation of Choice 15
- Perception of Game Violence 16
- Behavioral Aggression 16
- Moderation by Fantasy Proneness 17

DISCUSSION 19

IMPLICATIONS 23

APPENDIXES 28

- Appendix A: Consent Form 28
- Appendix B: Introduction Form 31
- Appendix C: Choice Manipulation: Game A Deviant Game B Heroic 35

Appendix D: Choice Manipulation: Game A Heroic Game B Deviant 37
Appendix E: Choice Form 39
Appendix F: Game Description: Deviant Character 41
Appendix G: Game Description: Heroic Character 43
Appendix H: Game Description: Speedy Reflexes..... 45
Appendix I: Questionnaire: First Game..... 47
Appendix J: Questionnaire: Second Game 52
Appendix K: Fantasy Engagement Questionnaire..... 58
Appendix L: Debriefing Form 61

REFERENCES 64

LIST OF TABLES

Table 1. Aggression as a Function of Character Role, Game Choice, and Fantasy Proneness 26

LIST OF FIGURES

Table 1. Three-Way Interaction between Fantasy, Character Role, and Choice 27

Introduction

According to the Entertainment Software Association, an estimated 68% of adults and 32% of children participated in some form of gaming in 2012. Of those, 62% played video games with others, whether in person or online (ESA, 2013). Today's games contain anything from educational content found in the *Jump Start* computer games to military simulations found in the *Call of Duty* series. Although games can be entertaining and educational, concern has arisen as to what kind of effects games containing violence have on the children and adults who play them.

Despite ongoing debate (Bushman, Rothstein, & Anderson, 2010; Ferguson & Kilburn, 2010), decades of research suggests a relationship between aggression and exposure to violent video game play. Specifically, violent game play produces higher aggressive behavior, cognition, and affect compared to nonviolent video game play (Anderson et al., 2010). Furthermore, violent game play has the opposite effect on prosocial behavior and empathy (Anderson et al., 2010; Greitemeyer & Osswald, 2009). A recent longitudinal study of high school students found that violent video game exposure was related to increases in adolescent's trajectory of aggression (Willoughby, Adachi, & Good, 2012). Various hypotheses have been proposed as to why this occurs. Bushman and Anderson (2002) suggested that violent game play creates a hostile expectation bias in which one views any harmful action that is caused by other people as intentional rather than accidental. In their research, Bushman & Anderson (2002) found that when participants who played a violent video game before reading an ambiguous

story about interpersonal conflict determined that the main character should think, feel, and act more aggressively than did participants who played a nonviolent game. Another hypothesis suggests that violent game play produces desensitization, such that players who are continually exposed to game violence begin to see normality in violent behavior and become less likely to experience arousal when actual violence occurs (Funk, Baldacci, Pasold & Baumgardner, 2004). Research conducted by Adachi and Willoughby (2011) suggests that competition, rather than violent aspects of video games is what causes increases in aggression. However, this idea is newer and replication research is required to ascertain the plausibility of this alternative interpretation.

Character Role

As the gaming industry has grown, games have become increasingly more complex. Once pixelated graphics now mirror humans in resemblance. Characters come equipped with personalities, and numerous games allow players to make behavioral choices for their characters. These new features have led researchers to examine game characteristics that might moderate the effect of violent game play on aggression. Of particular interest for the present research is the type of character one plays in a violent game, specifically whether one plays as a heroic or deviant character. Previous research has shown that those who play a deviant character exhibit more aggression than those who play a heroic character (Groves, Lishner, & Chrobak, 2015; Yoon & Vargas, 2014). Also of interest is how the ability to choose which game one plays may affect the link between violent video game play and aggression.

Choice

While the gaming industry has produced more realistic and complex characters, it has also begun changing the format of some games. Previously, most games started out with a preset story arc. One played as the main character, progressing throughout the story without having any real influence beyond what had already been written into the game. Nowadays, some games allow players to make moralistic choices throughout the game. These choices can affect how other non-playable characters interact with the main character and how the story progresses. This can also sometimes change how the game will end. It should be noted that this choice is somewhat controlled. Players are usually only able to choose from a limited number of options that lead to certain predetermined consequences. Because there are publishers that are now adding an element of controlled choice into their games, it seems plausible that choice could be a moderator of some of the effects associated with violent video game play and aggression. Research has shown that using a free-choice induced compliance paradigm leads to attitudinal change such that participants show a positive attitude toward what they had chosen (Brehm, 1956). This has been shown to have both short-term (immediately following choice) and long-term (at least one month later) effects, such that attitudes stay persistent with what was chosen (Sénémeaud & Somat, 2009). Given this, if participants are allowed to choose the role they play in a game their attitude would shift to be in line without whatever role they had chosen. Thus, being able to choose the role one plays may motivate one to more strongly adopt that character's goals and perspective. Therefore, when one chooses to play a heroic or deviant character, he or she is likely to be more influenced by and behave

more consistently with the role in subsequent interactions. Since the character role effect has been found under circumstance involving no choice (Groves, Lishner, & Chrobak, 2015), it seems likely that the effect may be magnified if participants were given choice of character role. Another subject of interest is how individual differences such as tendency to engage in fantasy proneness may moderate the effects of violent game play on aggression.

Fantasy Proneness

Wilson and Barber (1983) identify fantasy proneness as the ability to delve deep into imaginary settings and themes. Although, much research has been devoted to the negative aspects of higher fantasy-prone people, this research has typically examined only 10-20% of the population who are unusually high in fantasy proneness (Lynn & Rhue, 1986; Rhue & Lynn, 1987; Wilson & Barber, 1983). Those who are highly fantasy prone are often perceived as having overactive imaginations or as "living in a dream world." Given that most children participate in some kind of pretend play (imaginary friends) and that parents or guardians often encourage such fantasy (pretending that children's toys are real, engaging in story telling), it seems reasonable to suggest that positive impacts of fantasy proneness also may exist. Developmental research speculates that increased fantasy thoughts (imaginary friends) are related to the development of cognitive flexibility, specifically cognitive inhibition and attention shift in children (Pierucci, O'Brien, McInnis, Gilpin, & Barber, 2014). Moreover, engaging in fantasy also predicts how cooperative children are with friends and adults, suggesting that higher

fantasy proneness predicts greater cooperation (Taylor, Cartwright, & Carlson, 1993). In addition, engaging in pretend play has been shown to help children develop an understanding of the differences between mental representation and what actually occurs in the external world (Taylor & Carlson, 1997). Furthermore, fantasy proneness may be an adaptive attribute, playing a role in self-concept and identity. For example, Rhue and Lynn (1987) found that those more prone to fantasy exhibited a more positive self-concept and viewed themselves as unique and creative human beings. At this time, it remains unclear if fantasy proneness is positive or negative in its impact on individuals. In all likelihood, given its complexity, fantasy proneness has a mixed impact on individuals. In addition, there may be other factors that determine when higher levels of fantasy result in positive or negative outcomes. Given the findings listed above, it seems plausible that individual differences in fantasy proneness may be an important moderator of violent game play effects on aggression. Also of interest is how individual differences such as tendency to engage in fantasy proneness may moderate the effects of violent game play on aggression.

The Present Research

The current study sought to delve further into whether the link between violent video game play and aggression is moderated by the character role one adopts during game play and fantasy proneness. Previous research conducted by Groves, Lishner, and Chrobak (2015) investigated two common character roles present in many types of violent video games: the heroic role and the deviant role. Stereotypic heroic characters perform actions that are generally more selfless. They are likely to put themselves in danger for the sake of helping others. In contrast, stereotypic deviant characters are more selfish. Instead of looking to help others, their actions are motivated toward their own self-interest. Although both types of game characters may engage in violent acts, the reasons for violence are quite different. Deviant characters engage in violent acts for their own benefit and to exploit others. Aspects like cruelty are unimportant or positively valued. Heroic characters engage in violent acts in order to protect or aid others. Unlike deviant characters, they are more restrained in who they target and avoid acts that exploit innocents.

Across three experiments, Groves, Lishner, & Chrobak (2015) found that participants assigned to play a violent heroic character were less aggressive after game play than those who were assigned to play a violent deviant character, but only under conditions of moderate provocation. Specifically, when participants played against an ostensible opponent using the Taylor's Competitive Reaction Time Task (TCRT), those who played a heroic character displayed less aggression than did those who played a

deviant character. The effect was not found if the opponent acted in a highly or minimally provocative manner, in which case aggression tended to mirror that of their opponent. One possible reason that character role effects were found only under moderate provocation was the ambiguity that the situation created for participants. Previous research looking at trait aggression and aggressive behavior has found that when the intention of another's actions is ambiguous, those higher in trait aggression tend to interpret the situation as hostile (Tremblay & Belchevski, 2004). Similarly, those in ambiguous situations who are provoked tend to interpret the situation as more hostile (Topalli & O'Neal, 2003). This suggests a possible motivational basis for the character role effect on aggressive behavior. Participants who assume a character role may adapt the motivations of that character, which will then guide their interpretation of subsequent situations that are ambiguous.

The present study sought to replicate and expand on Groves, Lishner, and Chrobak's (2015) results by examining the effect of character role when participants are permitted to choose their game (and thus character role). In Groves et al.'s study, participants were assigned to play either a heroic or deviant character. In the present study, an induced compliance manipulation (Festinger & Carlsmith, 1959) was used to give half of the participants the illusion of choice as to which game, and thus character role, they chose to play. It was predicted that the results would replicate those of Groves et al. in that participants would show more aggression following violent game play as a deviant character than as a heroic character when the role was assigned to them. Moreover, it was hypothesized that the effect would be enhanced when players felt free

to choose their game. Importantly, we also examined whether this predicted effect would be further moderated by the degree of fantasy proneness of the player. Presumably, those who are more prone to fantasy, and thus better at engaging in fantasy activities would in turn more instantly adopt the role when they have chosen it.

Method

Participants

One hundred twenty-nine participants were recruited via the SONA system at a midsized Midwestern university. Six participants were excluded from the study for suspicion and three were excluded due to a failure of the induced compliance manipulation, leaving the total number of participants at 120 (80 female, 40 male). Participants received partial course credit for taking part in the study. All participants were assigned to one of four conditions in a 2 (character role: heroic versus deviant) x 2 (assigned versus choice) design using randomized blocks.

Procedure

The present study is an extension replication of Groves, Lishner, and Chrobak (2015). One of two female graduate student researchers met participants individually at a location separate from the testing room. Participants were then led to the testing room and given an informed consent document to read over and sign (Appendix A). If they agreed to participate, they were then asked to read an introduction (Appendix B), which provided a thorough explanation of the ostensible purpose of the study. Participants were told that the researchers wanted to assess video game enjoyment using single and multiplayer modes of game play as well as examine how game storylines can affect enjoyment. Participants were also informed that two other ostensible same sex

participants were taking part in the study. Finally, participants were told that their identity would be kept anonymous from the other ostensible participants.

Manipulation of character role choice. Once participants read the introductory information, they were presented with their first game. Participants in the assigned role conditions were given no choice about what game they played. Participants in the choice condition were first presented with a paper briefly describing the roles disguised as two different games and were asked to choose which game they wished to play (Appendix C and D). To keep the researcher blind to the choice, participants were asked to choose Game A or Game B. Each game description briefly described a heroic and deviant character. To ensure that participants chose the role corresponding to their condition, the research expressed verbally "We are in need of more participants for Game A, but the choice is entirely up to you. It won't affect you in anyway if you decide to choose Game B." Note that counterbalancing was done for Game A and Game B in order to match up the heroic and deviant descriptions. All participants were given a more in-depth description of their game and character in order to keep the descriptive information in mind during game play (Appendix F and G). Three participants did not follow the induced compliance paradigm and chose Game B rather than Game A. These participants were excluded from data analysis and their condition was replaced and mixed back into the randomized blocks.

The researchers then stated that the participants would be playing a modified version of the game *Unreal Tournament 2004*, a first-person shooter game. First, the researcher helped participants learn the controls of the game. Participants were shown

who the enemies and allies were, how to pick up weapons, and how to heal their character. After participants became comfortable with game controls, the researcher stated that the game would be played for eight minutes after which the researcher would return to the room. The researchers asked participants to read the description of the game over one more time before beginning game play. Once the researcher left, the eight minute game play session started.

Measure of aggression. Following game play, the researcher returned to the room and informed participants that it was time to set up the second game, which unbeknownst to them, was a measure of behavioral aggression known as the Taylor's Competitive Reaction Time Task (TCRT). Participants are told that they are playing against another person in the study and that the goal of the game is to click a red box faster than their opponent when the timer is up. When playing the TCRT, participants are required to set a noise level and duration level before clicking the "ready" button. A green box appears in the center of the screen indicating that the participant's opponent is still deciding on his or her noise level. The box turns yellow and then red within a matter of seconds. Participants were instructed to click the red box as fast as possible in order to win the trial. Although participants were told their opponent was another participant, in reality, the player was a computer programmed to win approximately half of the trials. If participants do not click the red box after two seconds, the trial was lost. This was done to reduce suspicion that the opponent is not a real person. Participant's noise level selections can range from 1 (60 deciebls [dB]) to 10 (105 dB). Duration can range from 1 (0.5 seconds) to 10 (5 seconds). Before beginning the TCRT, participants experienced the

highest and lowest volumes of the noise blast and intensity to which they and their ostensible opponent could be exposed. Higher noise blast and duration levels were coded as forms of higher aggressive behavior. The provocation levels that were administered to the participants when they lost a trial, which were moderate in nature, ranged from 3 (75 dB) to 7 (90 dB) on volume and 2 to 4 seconds for duration. While other methods such as administration of hot sauce and electrical shocks have been used as measures of aggression in video game research, the TCRT was chosen for this study because it is a commonly used measure for lab aggression (Giancola & Parrot, 2008) and because it is the same measure used in the Groves et al. (2015) study. An average for intensity was computed as well as a separate average for duration. These averaged scores were then averaged together in order to make an index of aggressive behavior (Cronbach's $\alpha = .78$).

Perceptions questionnaires and fantasy scale. Once the TCRT was completed, participants were told that the second ostensible participant was finishing up his or her game and was asked if they would fill out three questionnaires while they waited for the second multiplayer game. The first questionnaire (Appendix I) assessed the Unreal Tournament 2004 gameplay. Included in the questionnaire were two items that asked, "Based on the description of the game you were provided, how good or evil was your character?" and "While playing the game, how good or bad did you feel your character was?" (-4 = *Extremely evil*, 0 = *Neither evil nor good*, 4 = *Extremely good*). Responses to both items were averaged to measure perceived evilness of the character role (Cronbach's $\alpha = .69$). To determine whether participants perceived the game as equally violent across character role condition, a third item asked a categorical measure of violence was

included ("Was the game violent") ("*Yes* or *No"*). If participants felt that the game was violent, a follow up question asked "How violent was the game?" (1 = *not at all violent*, 9 = *extremely violent*). A final questionnaire (Appendix K) assessed the tendency to engage in fantasy and pathological fantasy (Plant, 2014). Given that this study was concerned with the degree of fantasy one engaged in as opposed to pathological fantasy, three of the items from the questionnaire assessing degree of fantasy were used. These questions were "How frequently would you say you engage in these activities?" (*Almost never, Once a year or less, A few times a year, Monthly, Once a week, Several times a week, Daily*), "Compared to the average person, how much time would you say you devote to these activities?" (*1= Much Less, 4= About the Same, 7= Much More*) and "How important is it that you be able to engage in these activities?" (*Extremely unimportant, Very unimportant, Somewhat unimportant, Somewhat important, Very important, Extremely important*). Responses to the three items were averaged to determine how high one was in fantasy proneness (Cronbach's $\alpha = .86$). Eight participants were missing an answer to one of the three fantasy questions so their scores were averaged for the two that were given.

After participants finished the questionnaires, the researcher returned to the room and began the debriefing process. The researcher asked a series of questions that were designed to assess participants' reactions to the study and determine their level of suspicion. As part of the debriefing process, participants read several brief paragraphs containing an in-depth explanation of what was actually occurring in the study (see

Appendix L). Researchers followed up with each participant to ensure his or her well-being. Finally, participants were thanked for their time, dismissed, and awarded credit.

Results

Manipulation of Character Role

A 2 (character role: heroic versus deviant) x 2 (condition: choice versus assigned) ANOVA revealed a significant main effect of character role on perceived evilness, $F(1, 115) = 13.68$, $p < .001$, $\eta^2 = .11$. Participants in the heroic role conditions perceived the role as less evil/more good ($M = .79$, $SD = .19$) than did participants assigned to the deviant character role condition ($M = -.21$, $SD = .19$). Neither the choice main effect nor the interaction were significant, both Fs $(1, 115) < .32$, $ps > .70$. The results suggest that the manipulation of character role was successful.

Manipulation of Choice

A 2 (character role: heroic versus deviant) x 2 (condition: choice versus assigned) ANOVA revealed a significant main effect of choice, $F(1, 116) = 148.94$, $p < .001$, $\eta^2 = .56$ Participants in the choice conditions perceived more of an ability to choose their game ($M = 6.06$, $SD = .26$) than did participants in the assigned condition ($M = 1.53$, $SD = .26$). Neither the character role main effect nor the interaction were significant, both Fs $(1, 116) < 3.13$, $ps > .08$. These results suggest that the manipulation of game choice was successful.

Perception of Game Violence

One hundred six participants (88.3%, 106/120) indicated the game was violent. A chi-square test of independence revealed no significant differences by condition in whether participants indicated the presence of violence in the game, $\chi^2(3) = 2.91$, $p = .41$. An additional examination of perceived violence was conducted on how violent the game seemed to those who indicated they thought the game was violent. A 2 (character role: heroic versus deviant) x 2 (condition: choice versus assigned) ANOVA revealed no significant main effects or interaction on the perception of violence in the violent game, all *Fs* (1, 113) < .59, *ps* > .45. These results suggested that any differences in aggression were not due to the differences in the perceived violence of the game across conditions.

Behavioral Aggression

A 2 (character role: heroic versus deviant) x 2 (condition: choice versus assigned) ANOVA revealed a significant main effect of character role on aggression, $F(1, 116) = 20.90$, $p < .001$, $\eta^2 = .15$. Those who played the heroic role displayed less aggression ($M = 4.04$, SD = .15) than did those who played the deviant role ($M = 4.99$, $SD = .15$). The ANOVA also revealed a significant main effect of choice on aggression, $F(1, 116) = 4.69$, $p < .05$, $\eta^2 = .04$, such that those in the assigned conditions were more aggressive ($M = 4.74$, $SD = .15$) than were those in the choice conditions ($M = 4.29$, $SD = .15$). The interaction between character role and condition was not significant, $F(1, 116) = .03$, $p = .87$.

Moderation by Fantasy Proneness

A three-stage hierarchal multiple regression analysis was conducted to examine the effects of character role and choice on aggression as a function of fantasy proneness. An unstandardized fantasy proneness score, the choice manipulation, and the character role manipulation were entered into Block 1. Three interaction terms (choice by character role, choice by fantasy, and role by fantasy) were created and entered into Block 2. Finally, a three-way interaction term (fantasy by character role by choice) was created and entered into Block 3.

As shown in Table 1, the hierarchical multiple regression revealed that the variables in the first block predicted aggression, F (3, 116) = 8.61, $p < .001$. Introducing the interaction variables in block two did not produce a significant change in R^2, $\Delta R^2 = .03$, $F(3, 113) = 1.52$, $p = .21$. Finally, the addition of the three-way interaction variable to the regression model showed that change in R^2 square was significant, $\Delta R^2 = .03$, $F(1, 112) = 4.51$, $p = .04$. The interaction between fantasy and character role on aggression for those who were assigned was not significant ($b = .26$, $SE_b = .22$, $\beta = .47$, $p = .24$), but was marginally significant for those who had choice ($b = .37$, $SE_b = .20$, $\beta = .63$, $p = .06$). Simple slopes for the association between fantasy proneness and aggression among those given choice were tested for those adopting the heroic role and those adopting the deviant role. The slope for those choosing the deviant role was positive and significant, $r = .36$, $p = .03$ whereas the slope for those choosing the heroic role was negative and significant, $r = -.35$, $p = .04$.

Figure 1 illustrates the three-way interaction between fantasy proneness, character role, and game choice on aggression. The effect of character role on aggression was evident, regardless of game choice condition or level of fantasy proneness. However, the character role effect was magnified among higher fantasy prone participants who chose to be heroic. Those who were higher in fantasy proneness and chose to be heroic displayed the lowest levels of aggression.

Discussion

The present study sought to replicate previous results found by Groves et al. (2015), who found that the character role adopted while playing a violent video game influences subsequent aggressive behavior. In addition, the current study set out to extend their findings by evaluating the hypothesis that choice would enhance the effect of character role on aggression and that these effects would be moderated by player's fantasy proneness. This study appears to be the first to manipulate game choice using an induced compliance paradigm as well as examine fantasy proneness as a moderator of character role and choice.

Results revealed that the manipulations of character role and game choice were successful. When participants adopted a heroic character role during violent game play they displayed less aggression than when they adopted a deviant character role, as was found by Groves et al. (2015). Furthermore, results revealed that game choice magnified the character role effect on aggression, but only among higher fantasy prone participants who chose to be heroic. When higher fantasy prone participants were not given choice, their subsequent actions tended to be more aggressive, although a weakened character role effect remained. One interpretation of this finding is that participants who were higher in fantasy proneness but did not get to choose their role were influenced by two factors: the character role and threat to freedom to choose their preferred fantasy. Reactance occurs when a person feels that someone or something is taking away his or her freedom to behave or to make choices (Brehm, 1966). Given that no opportunity to

reestablish freedom was available, higher fantasy participants may have become frustrated, which in turn may have produced increased aggressive behavior. It may also be that there is a reduction in baseline reactance (produced by being in the study), and thus aggression, for those higher in fantasy proneness who are permitted to choose their game.

One possibility for the character role effect magnification is that there is something about the heroic character role that causes aggression to dissipate. Given the nature of heroic characters (restrained use of force, self-sacrifice), perhaps those who play as a heroic character feel the need to abide by the hero's code of conduct during game play, which then carries over into subsequent situations. The nature of this code of conduct may be similar to that identified by Cohen (1993). Specifically, Cohen revealed five personal attributes that define heroic individuals despite having diverse origins and experiences. These include "ability to balance decisions in terms of values and consequences, commitment to others, intolerance of injustice, behavior that reflects the highest expectation for personal conduct and a sense of universal ethics that transcend immediate concerns, including personal safety" (Cohen, 1993, p.122). This is consistent with the results, showing that those who played as a heroic character were less aggressive than those who played as deviant character.

The present study and previous research have demonstrated the moderating effect of character role on aggression following game play, yet questions as to what may be driving the effect remain. One possible explanation is suggested by the theory of mindset actions phases, which proposes that different cognitive processes are activated when

people are choosing goals versus seeking to meet goals (Gollwizter, 2012). Choosing which goals or desires one should pursue involves a deliberative mindset, whereas deciding on what behaviors will best help achieve these goals involves an implemental mindset (Gollwizter, 2012). Because the implemental mindset requires more focus and closed-mindedness toward information, carryover of motivational orientations into subsequent situations can occur (Henderson, de Liver, & Gollwitzer, 2008). One interpretation of the present findings was that the mindset during game play was highly implemental. Having choice in the game one played would not have affected the deliberative mindset once game play begins. Participant's goals were established at the beginning via the character role description. Because of this, during game play they spent more time finding ways to carry out their goals in the context of the game rather than picking the goals themselves, which in turn resulted in carryover from the implemental mindset from violent video game into the TCRT. This idea is consistent with the findings that those who played as a heroic character showed less aggression than did their deviant counterparts. Given this explanation, it is possible that the character role effect may not appear in games that involve extensive engagement of a deliberative mindset, such as what might be found in role playing or nonviolent games.

The present findings suggest important implications for theoretical understanding of violent game play effects on aggression. First, the findings add to a growing literature on the influences of game character role on aggression after violent video game play (Groves et al, 2015; Yoon & Vargas, 2014). Second, the findings provide added insight into phenomena that may be moderating effects of violent game play on aggressive

behavior. Choice, character role, and fantasy engagement all interacted with one another to influence aggression. The results thus reveal that multiple moderators can complexly affect the magnitude of aggression following violent video game play.

Implications

The present findings suggest important implications for theoretical understanding of violent game play effects on aggression. First, it reveals that even when the manipulation of character role is subtle, an effect on aggression remains. This suggests that the current findings may underestimate the potency of the effect, given that the character role information is rather minimal compared to what is typically found in contemporary video games. Thus, the character role effect may be greater outside the laboratory setting. Second, given that choice and higher fantasy revealed a magnification of the character role effect results in the choice condition may better model what occurs outside the laboratory. The effects of the heroic character role may lead to less violence overall for those who are higher in fantasy proneness versus those who are lower in fantasy proneness. It is important to note that the character role effects may be stronger in children. The current study used a college population of emerging adults, but children often are more fantasy prone than adults (Pierucci, O'Brien, McInnis, Gilpin, & Barber, 2014). Future research would benefit from examining the interactive effects of character role, choice, and fantasy proneness in children to see if there is an even greater magnification of effect.

One question to consider is whether game play is even necessary in order to find the character role effect. Could just giving participants vignettes describing heroic or deviant perspectives and then leaving them to play the TCRT or some other form of behavioral aggression be enough to get the same results? Given the briefness of the

character role descriptions and the potential importance of implemental processes, this seems unlikely. Presumably, one must engage in the character role for carryover effects to occur. Another question is whether something other than character role is being manipulated, such as the presence of prosocial elements or degree of violent acts perpetrated during game play. Playing as a heroic character in a violent game may simply be playing a violent game with prosocial elements (Greitemeyer & Osswald, 2010). Thus, one interpretation of this study is that those who adopt the heroic role were more prosocial as opposed to less aggressive. Alternately, it may be that game play as a heroic character leads to less violent action during the game, which in turn produces less subsequent aggression. Future research should seek to use a clear measure of helping behavior and assess the degree of violent play on character role to evaluate these explanations of the character role effect on aggression.

It should be noted that the current study's element of choice between character roles focused more on a moralistic choice at the beginning of the game versus ongoing choices throughout the entire game. When participants were given choice in their game, they knew they were either going to be heroic or deviant. But making one moral choice in the beginning does not guarantee one will continue to abide by the chosen role. Participants were following a preset arc rather than constructing their own arc. One could choose a heroic arc but then deviate from the role as the game progresses. In other words, the story arc doesn't ultimately decide a player's actions. Thus, the results speak to selection of the game one decides to play rather than what happens when one crafts the

morality of a character in an ongoing manner during the course of game play. Future research should seek to distinguish between these two forms of choice in game play.

Table 1.

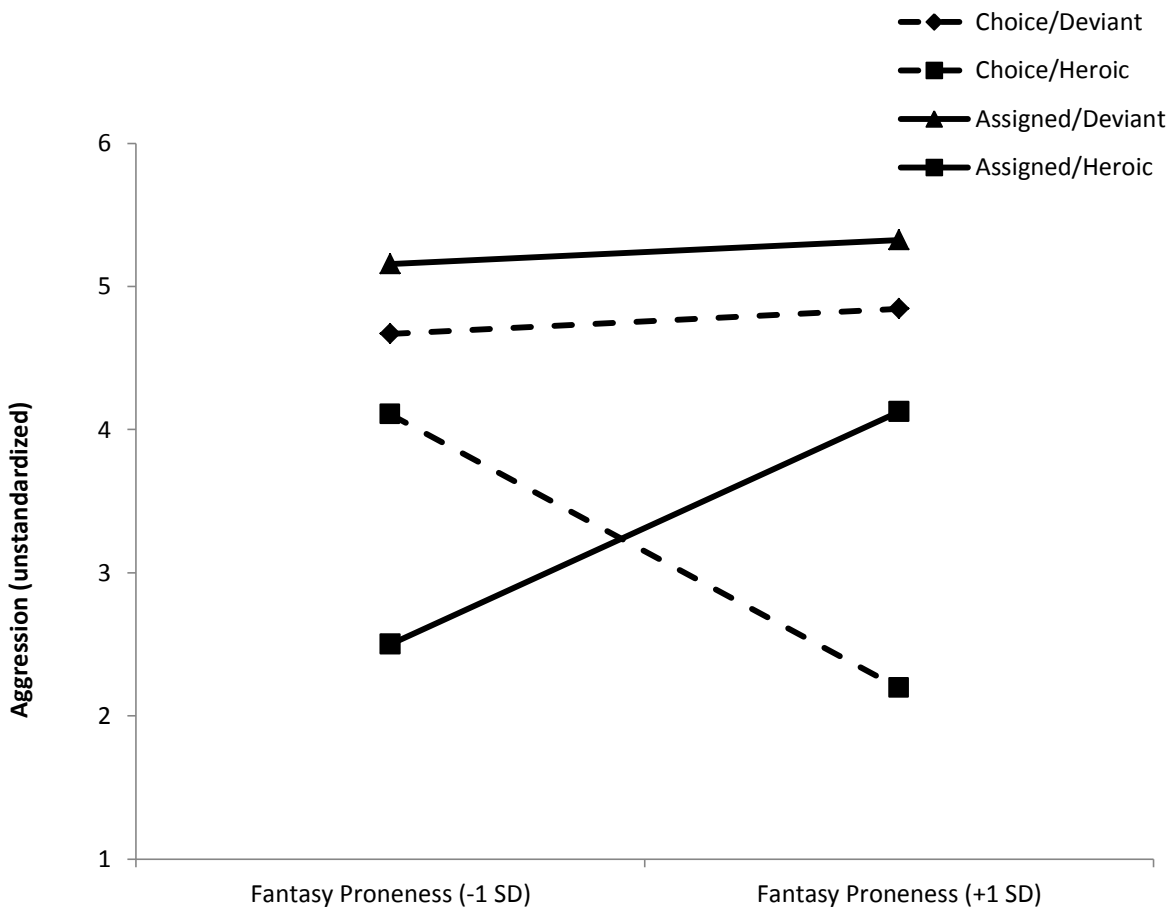
Aggression as a Function of Character Role, Game Choice, and Fantasy Proneness

Aggression		R^2	ΔR^2	B	SE
Block 1		.182	.182*		
	Fantasy			.033	.074
	Choice			-.458*	.208
	Role			.960*	.209
Block 2		.214	.032		
	Fantasy			.163	.182
	Choice			.869	.677
	Role			.662	.635
	ChoicexRole			-.162	.418
	FanxChoice			-.316*	.149
	FanxRole			.088	.149
Block 3		.245	.030*		
	Fantasy			.315*	.146
	Choice			2.113*	.888
	Role			1.972*	.879
	ChoicexRole			-2.612*	1.225
	FanxChoice			-.621*	.206
	FanxRole			-.257	.219
	FanxChoicexRole			.625*	.294

Note. * indicates $p<.05$ (two-tailed). N = 120.

Figure 1.

Three-way Interaction between Fantasy Proneness, Character Role, and Game Choice



APPENDIX A

Consent Form

UWO Department of Psychology Consent Form

The Department of Psychology supports the practice of protecting human participants in research. The following information is provided so that you can decide whether you wish to participate in the present study. Your participation is solicited but is strictly voluntary.

If you decide to participate in this study, you will be asked to briefly play several computer video games. Games will consist of both single-player and multi-player game play. Your reactions to playing the games will be assessed by questionnaire.

Some video games used in the study contain intense action (ESRB rating of 17+ for "blood and gore, intense violence, mild language"), which some may find uncomfortable to play. Although participation in this study will not directly benefit you, we believe that the information you provide will be useful in furthering our understanding of how people react to playing video games.

If you decide to participate, you will be free to withdraw at any time and will receive credit for your participation. If you decide not to participate in this study, please let the researcher know and she or he will excuse you from the study. You do not need to tell the researcher your reasons for choosing not to participate. If you decide to withdraw from the study, any information collected from you up to that point will be destroyed.

Any responses you provide will be confidential and will not be associated in any way with your name. No information that could identify you will be released in any form.

If you have any questions, please ask us or contact:

David A. Lishner, Ph.D. (lishnerd@uwosh.edu; Phone: 920-424-2301)
Psychology Faculty Supervisor
Department of Psychology
University of Wisconsin Oshkosh
Oshkosh, WI 54901

If you have any complaints about your treatment as a participant in this study, please contact the following individual:

Chair, Institutional Review Board for
Protection of Human Participants
c/o Grants Office
UW Oshkosh
920-424-1415

Although the chairperson may ask for your name, all complaints are kept in confidence.

Consent Statement: I have received an explanation of the study and agree to participate. I understand that my participation in this study is strictly voluntary, and that I may withdraw at any time.

_____ _____

Name Date

This research has been approved by the University of Wisconsin Oshkosh IRB for the Protection of Human Participants for a one year period, valid until (date of approval).

APPENDIX B

Introduction Form

Video Game Enjoyment Study: Introduction

Video games are one of the fastest growing sectors of the entertainment industry today. Despite the vast number of people that play these games, little research has been done to understand what qualities of these games lead to the greatest levels of enjoyment. Considering the rapid growth of the video game industry and the amount of leisure time devoted to playing video games, the purpose of the current study is to better understand what it is that makes video games enjoyable to different people.

Given the complexity of video games, there are many video game factors that may affect whether someone likes or dislikes a game. In this study, our goal is to focus on several of these factors, which are described below:

1. Single-player vs. multiplayer game play mode. Some games are played alone, while others are played with one or more additional players.

2. Elaborate storyline vs. simple storyline vs. no storyline. Some games have very elaborate storylines that describe the purpose of the players' actions in great details, whereas other games have very simple storylines that describe the purpose of the players' actions in very little detail. Still other games have no storyline.

What Will Happen in this Study?

In order to examine these factors you and two other participants will be asked to play three different games. To examine the role of single player vs. multiplayer game play, you will be asked to play two games with one of the other participants. For the third game, you will be asked to play by yourself. Of the three games, one will have an elaborate storyline, one will have a simple storyline, and one will have no storyline. You will be given information about the storyline (or lack thereof) along with instructions for game play prior to playing each game. In some instances, participants will be randomly assigned the option to choose the game they wish to play while others will just be assigned a game. Your reactions to playing the games will be assessed by questionnaire at various points in the study.

Because other indirect factors such as time of day, day of week, time of semester, and weather may influence reactions to game play, we run three participants at the same time during each study session. This allows us to control for these indirect factors while running all player mode and storyline conditions in a single session. Also, because in real life multiplayer gaming one's actual identity is typically not known by others, we have designed the study to ensure that your actual identity remains anonymous to the other participants. Participants are recruited using three separate study codes, are met at different locations in the building, and are given no identifying information about each so that each participants' identity will remain anonymous. Once the study if finished, each

participant will leave at slightly different times so that you will never meet or interact with the other participants.

Game Acknowledgments and Disclaimers

The games you will play in this study are copyrighted by Midway Entertainment. We are required by law to make note of this. These games are not available for public use and have been provided to us by Midway Entertainment for research purposes only. Although Midway Entertainment is entitled to a summary of the results, our agreement with them permits us to report the results in scientific and other public forums regardless of the research outcomes. Furthermore, for ethical reasons, we will maintain the anonymity of our participants. As such, no identifying information will be linked to your responses in this study or will be passed along to Midway Entertainment for marketing purposes.

At this time, please open the door to let the research assistant know that you are ready to continue.

APPENDIX C

Choice manipulation: Game A Deviant Game B Heroic

Choose Your Game

Please read the descriptions of the games below and indicate to the researcher if you would like Game A or Game B.

Game A:

You have embarked on a quest to plunder riches. Destroy anyone who stands in your way.

Game B:

Your mission is to defend against from invading warriors.

APPENDIX D

Choice manipulation: Game A Heroic Game B Deviant

Choose Your Game

. Please read the descriptions of the games below and indicate to the researcher if you would like Game A or Game B.

Game A:

Your mission is to defend against invading warriors.

Game B:

You have embarked on a quest to plunder riches. Destroy anyone who stands in your way.

APPENDIX E

Choice Form

Choose Your Game

Please indicate on this page which game you would like to play.

_____ I want **Game A**

_____ I want **Game B**

APPENDIX F

Game Description: Deviant Character

Game Information

Game: **Rogue Assault**

Mode: **Single-playe**r

Storyline: **Simple**

Storyline Description:

You are feared throughout the known worlds. Bowing to no authority or law, you have embarked on a quest to plunder the riches of the galaxy. Your goal is to crush all those who stand before you through force of arms using any weapon at your disposal. Destroy all who resist you; give no mercy.

APPENDIX G

Game Description: Heroic Character

Game Information

Game: **Rogue Assault**

Mode: **Single-playe**r

Storyline: **Simple**

Storyline Description:

Rogue warriors have invaded your peaceful home world. Unprovoked, they seek to harm your people and plunder the riches of your world. Your goal is to defend against these invaders through force of arms using any weapon at your disposal. Destroy all who would seek to bring ruin or harm to your people.

APPENDIX H

Game Description: Speedy Reflexes

Game Information

Game: **Speedy Reflexes**

Mode: **Multi-player**

Storyline: **None**

Storyline Description: **None**

APPENDIX I

Questionnaire: First Game

Game Reactions Questionnaire

Game: **Rogue Assault**

Mode: **Single-playe**r

Storyline: **Simple**

Directions: Please answer each of the following questions.

1. How enjoyable was it to play this game?

Not at all								Extremely enjoyable
1	2	3	4	5	6	7	8	9

2. How fun was it to play this game?

Not at all								Extremely fun
1	2	3	4	5	6	7	8	9

3. How willing would you be to play this game if offered another opportunity to do so?

Not at all								Extremely willing
1	2	3	4	5	6	7	8	9

4. To what extent did you like the game graphics?

Not at all								Very much
1	2	3	4	5	6	7	8	9

5. How realistic did your character seem?

Not at all								Extremely realistic
1	2	3	4	5	6	7	8	9

6. Overall, how realistic did the game seem?

Not at all								Extremely realistic
1	2	3	4	5	6	7	8	9

7. Was the game violent?

Yes No

8. If you thought the game was violent, how violent did the game seem?

Not at all Extremely violent
1 2 3 4 5 6 7 8 9

9. How aggressive did the game make you feel?

Not at all Extremely aggressive
1 2 3 4 5 6 7 8 9

10. How aggressive were you while playing the game?

Not at all Extremely aggressive
1 2 3 4 5 6 7 8 9

11. How mentally engaged were you while playing the game?

Not at all Extremely mentally engaged
1 2 3 4 5 6 7 8 9

12. How emotionally engaged were you while playing the game?

Not at all Extremely emotionally engaged
1 2 3 4 5 6 7 8 9

13. To what extent was your heart racing while playing the game?

Not at all A lot
1 2 3 4 5 6 7 8 9

14. To what extent did you feel anxious while playing the game?

Not at all Extremely anxious
1 2 3 4 5 6 7 8 9

15. To what extent did you feel frustrated while playing the game?

Not at all Extremely frustrated
1 2 3 4 5 6 7 8 9

16. How difficult was the game to play?

Not at all								Extremely difficult
1	2	3	4	5	6	7	8	9

17. How competitive did you feel while playing the game?

Not at all								Extremely competitve
1	2	3	4	5	6	7	8	9

18. To what extent did you feel guilty while playing the game?

Not at all								Extremely guilty
1	2	3	4	5	6	7	8	9

19. Based on the description of the game you were provided, how good or evil was your character?

Extremely evil				Neither evil nor good				Extremely good
-4	-3	-2	-1	0	1	2	3	4

20. While playing the game, how good or evil did you feel your character was?

Extremely evil				Neither evil nor good				Extremely good
-4	-3	-2	-1	0	1	2	3	4

21. While playing the game, how good or evil did you feel your character's actions were?

Extremely evil				Neither evil nor good				Extremely good
-4	-3	-2	-1	0	1	2	3	4

22. To what degree would you say your player's actions during gameplay were justified?

Not at all								Very much
1	2	3	4	5	6	7	8	9

23. To what extent did you enjoy playing your game character?

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

24. While playing the game, how similar did you feel you were to the character you played?

Not at all								Very much
1	2	3	4	5	6	7	8	9

25. While playing the game, how much did you want to be like the character you played?

Not at all								Very much
1	2	3	4	5	6	7	8	9

26. While playing the game, how much did you feel like the character you were playing as?

Not at all								Very much
1	2	3	4	5	6	7	8	9

27. To what extent did you feel you had choice in selecting the game you played?

Not at all								Very much
1	2	3	4	5	6	7	8	9

28. How difficult did you find the controls?

Not at all								Very difficult
1	2	3	4	5	6	7	8	9

29. How much did you like the storyline?

Not at all								Very much
1	2	3	4	5	6	7	8	9

APPENDIX J

Questionnaire: Second Game

Game Reactions Questionnaire

Game: **Speedy Reflexes**

Mode: **Multi-playe**r

Storyline: **None**

Directions: Please answer each of the following questions.

1. How enjoyable was it to play this game?

Not at all Extremely enjoyable
1 2 3 4 5 6 7 8 9

2. How fun was it to play this game?

Not at all Extremely fun
1 2 3 4 5 6 7 8 9

3. How willing would you be to play this game if offered another opportunity to do so?

Not at all Extremely willing
1 2 3 4 5 6 7 8 9

4. To what extent did you like the game graphics?

Not at all Very much
1 2 3 4 5 6 7 8 9

5. Overall, how realistic did the game seem?

Not at all Extremely realistic
1 2 3 4 5 6 7 8 9

6. Was the game violent?

Yes No

7. If you thought the game was violent, how violent did the game seem?

Not at all Extremely violent

1 2 3 4 5 6 7 8 9

8. How aggressive did the game make you feel?

Not at all Extremely aggressive
1 2 3 4 5 6 7 8 9

9. How aggressive were you while playing the game?

Not at all Extremely aggressive
1 2 3 4 5 6 7 8 9

10. How mentally engaged were you while playing the game?

Not at all Extremely mentally engaged
1 2 3 4 5 6 7 8 9

11. How emotionally engaged were you while playing the game?

Not at all Extremely emotionally engaged
1 2 3 4 5 6 7 8 9

12. To what extent was your heart racing while playing the game?

Not at all A lot
1 2 3 4 5 6 7 8 9

13. To what extent did you feel anxious while playing the game?

Not at all Extremely anxious
1 2 3 4 5 6 7 8 9

14. To what extent did you feel frustrated while playing the game?

Not at all Extremely frustrated
1 2 3 4 5 6 7 8 9

15. How difficult was the game to play?

Not at all Extremely difficult

1 2 3 4 5 6 7 8 9

16. How much did you feel that the volume levels you had selected were appropriate?

Not at all Very much
1 2 3 4 5 6 7 8 9

17. How justified did you feel your actions were while playing the game?

Not at all Very much
1 2 3 4 5 6 7 8 9

18. To what extent did you feel guilty while playing the game?

Not at all Extremely guilty
1 2 3 4 5 6 7 8 9

19. To what extent did you enjoy playing the game with the other participant?

Not at all Very much
1 2 3 4 5 6 7 8 9

20. To what extent did you feel like you knew how to react in this game?

Did not know at all Knew extremely well
-4 -3 -2 -1 0 1 2 3 4

21. To what extent did you feel like you could accurately interpret the other participant's actions?

Did not know at all Knew extremely well
-4 -3 -2 -1 0 1 2 3 4

22. While playing the game, how good or evil did you feel the other participant was?

Neither evil
Extremely evil nor good Extremely good
-4 -3 -2 -1 0 1 2 3 4

23. While playing the game, to what extent was the other participant's behavior caused by the game context?

Not at all Entirely caused by game context
1 2 3 4 5 6 7 8 9

24. While playing the game, to what extent was the other participant's behavior caused by his or her personality?

Not at all Entirely caused by personality
1 2 3 4 5 6 7 8 9

27. How protective did you feel toward the other participant?

Not at all Extremely protective
1 2 3 4 5 6 7 8 9

28. To what extent did you feel you had choice?

Not at all Very much
1 2 3 4 5 6 7 8 9

29. How much did you like the other participant?

Not at all Very much
1 2 3 4 5 6 7 8 9

30. While playing the game, how aggressive did the other participant seem?

Not at all Extremely aggressive
1 2 3 4 5 6 7 8 9

31. While playing the game, how hostile did the other participant seem?

Not at all Extremely hostile
1 2 3 4 5 6 7 8 9

32. While playing the game, how mean did the other participant seem?

Not at all Very much so
1 2 3 4 5 6 7 8 9

33. Did you feel provoked by the other particpant?

Yes No

34. How competitive did you feel while playing the game?

Not at all								Extremely competitve
1	2	3	4	5	6	7	8	9

APPENDIX K

Fantasy Engagement Questionnaire

Fantasy Engagment

The following items ask about your engagement in fantasy. Please take a moment to consider the fantasy activities you engage in most frequently: for example, reading fantasy novels or watching science fiction movies, creating a new world through writing or art, daydreaming about luxury cars, houses or vacations, speaking to an imaginary other or audience, or taking on a character in roleplaying games like Second Life or World of Warcraft. Answer the questions below with regard to these fantasy activities. There are no "right" or "wrong" answers, and we are not trying to "trick" you into giving any sort of response. We are simply interested in what "fantasy" (and "fantasy activity") means for people.

How frequently would you say you engage in these activities?

a) Almost never
b) Once a year or less
c) A few times a year
d) Monthly
e) Once a week
f) Several times a week
g) Daily

Compared to the average person, how much time would you say you devote to these activities?

Much less — About the Same Amount — Much More

1----------2----------3----------4----------5----------6----------7

How important is it to you that you be able to engage in these activities?

a) Extremely unimportant
b) Very unimportant
c) Somewhat unimportant
d) Somewhat important
e) Very important
f) Extremely important

Would you consider these fantasy activities as being primarily…

Daydreams? Yes/No

Activities you usually engage in alone? Yes/No

Based on fantasies you created? Yes/No

Based on things that could happen in real life? Yes/No

Based on fantasies where you are the main character? Yes/No

Things others would look down upon if they found out? Yes/No

Requiring active participation (e.g. playing games versus passively daydreaming)? Yes/No

APPENDIX L

Debriefing Form

Video Game Enjoyment Study: Debriefing

Thank you for participating in this study. The purpose of this form is to provide you with more in-depth information about the study. The actual purpose of this study is not to examine video game enjoyment. Rather, the actual purpose of this study is to examine how playing violent video games affects one's reactions toward other people. Specifically, we are interested in understanding whether people react differently to one another after playing a violent game (a) either when provoked or unprovoked, (b) either as a good character or as an evil character, and (c) either as having the perceived ability to choose whether you are a good or evil character.

To examine this issue we had all participants play a game character in a violent video game (Rogue Assault) and then play a competitive video game against "another participant" (Speedy Reflexes). We randomly assigned participants to read one of two possible violent video game descriptions or randomly assigned participants to believe they had the ability to choose the role of their character. In one description the game character is portrayed in a manner to make the character seem either relatively good (protecting against invaders) or relatively bad (invading a planet and harming its citizens). All participants played the Speedy Reflexes game and receive a moderate level of noise blasts. We also included a condition in which some participants never played the first game. By having these five different conditions, we are able to compare how the different conditions affect the intensity and duration of noise blasts delivered to another person in the "Speedy Reflexes" game.

As you may have guessed by now, there were a number of misleading things that you were told about the study. First, the purpose of the study was not to examine factors that affect game play enjoyment. Rather, the purpose was to examine the factors mentioned in the previous paragraph. Second, there actually were no other participants other than you in the study. In the Speedy Reflexes game you actually played against the computer, which was programmed to win and lose a certain number of times. The purpose for giving you this misleading information was not to trick you. Rather, it was given to you to allow us to vary if someone received the ability to choose the role or not in a manner that would make the situation seem as real and as engaging as possible. If we told participants the full truth about the purpose of the study in the beginning, then they might experience the situation as fictional and to react very differently from how they would react in real life situations. Also, in some circumstances, if participants know about the actual purpose of a study, then they may feel compelled to report their reactions to match the expectations of the study or behave in an untruthful manner. For these reasons, when psychologists examine certain psychological processes they may withhold some information about a study or provide participants with some information about the study that is misleading. We realize that you may feel a bit uncomfortable about having been told misleading information, but we want to assure you that it only was done to ensure that your experience in this study was as realistic as possible. Furthermore, it is important to remember that there is no correct or incorrect behavior or response to any of

the questionnaires or materials in this study. However, if you still have any concerns about this study, then please speak with the research assistant about your concerns. If you are uncomfortable doing so or wish to discuss concerns about the study once it has ended, then please contact Dr. David Lishner (at lishnerd@uwosh.edu) who will be more than happy to talk with you about any concerns you may have.

Again, thank you very much for your participation. We value the time and the energy you spent in this study and it is our hope that the data you have provided will help us to better understand human psychology.

References

Adachi, P. J. C. & Willoughby, T. (2011). The effect of video game competition and violence on aggressive behavior: Which characteristic has the greatest influence?. *Psychology of Violence, 1*(4), 259-274.

Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., Rothstein, H. R., Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta analytic review. *Psychological Bulletin, 136,* 151-173. doi: 10.1037/a0018251.

Brehm, J. W. (1956). Post-decision changes in desirability of alternatives. *Journal of Abnormal and Social Psychology, 52,* 384–389.

Brehm, J. W. (1966). A theory of psychological reactance. *New York.*

Bushman, B.J., & Anderson, C.A. (2002). Violent video games and hostile expectations: A test of the general aggression model. *Personality and Social Psychology Bulletin, 28,* 1679-1686.

Bushman, B. J., Rothstein, H. R., Anderson C. A. (2010). Much ado about something: Violent video game effects and a school of red herring: Reply to Ferguson and Kilburn (2010). *Psychological Bulletin*. *136(2),* 182-187. doi: 10.1037/a0018718.

Cohen, S. (1993). Lessons in moral behavior: A few heroes. *Childhood Education.* Spring, 168-170.

Cohen, S. (1993). Lessons in moral behavior: A few heroes. *Childhood Education.* Spring, 168-170.

Entertainment Software Association. (2013). Industry Facts. *The Entertainment Software Association*. Retrieved March 24, 2013 from http://www.theesa.com/facts/index.asp.

Ferguson, C. J., & Kilburn, J. (2010). Much ado about nothing: The misestimation and overinterpretation of violent video game effects in eastern and western nations: Comment on Anderson et al. (2010). *Psychological Bulletin*. *136(2)*. 174-178. doi:10.1037/a0018566.

Festinger, L. & J. M Carlsmith. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58*, 203–210.

Funk, J. B., Baldacci, H. B., Pasold, T., & Baumgardner, J. (2004). Violence exposure in real life, video games, television, movies, and the internet: is there desensitization?. *Journal of Adolescence*, 27, 23-39.

Giancola, C. L., & Parrot, D. J. (2008). Further evidence for the validity of the Taylor aggression paragidm. *Aggressive Behavior, 34*, 214-229. doi: 10.1002/ab.20235.

Gollwitzer, P. M. (2012). Mindset theory of action phases. In P. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol.1, pp. 526-545). London: Sage Publications.

Greitemeyer, T. & Osswald, S. (2009). Prosocial video games reduce aggressive cognitions. *Journal of Experimental Social Psychology, 45,* 896-900.

Groves, C. L, Lishner, D. A., & Chrobak, Q. M. (2015). *Playing the villain: The effect of violent video game character role on aggression*. Manuscript under review at *Aggressive Behavior*.

Henderson, M. D., de Liver, Y., & Gollwitzer, P. M. (2008). The effects of an implemental mind-set on attitude strength. *Journal of Personality and Social Psychology*, *94*, 396-411.

Lynn, S. J. & Rhue, J. W. (1986). The fantasy-prone person: Hypnosis, imagination, and creativity. *Journal of Personality and Social Psychology, 51*(2), 404-408.

Midway Entertainment. (2004). *Unreal tournament 2004* [PC game]. New York, NY: Atari, Midway Games.

Pierucci, J. M., O'Brien, C. T., McInnis, M. A., Gilpin, A. T., & Barber, A. B. (2014). Fantasy orientation constructs and related executive function development in preschool: Developmental benefits to executive functions by being a fantasy oriented child. *International Journal of Behavioral Development, 38*(1), 62-69.

Plante, C. (2014). Getting into the game: The precursors of immersion into violent video games and the effect of immersion on post-game aggression. (Unpublished doctoral dissertation). University of Waterloo, Waterloo, Ontario, Canada.

Rhue, J. W., & Lynn, S. J. (1987). Fantasy proneness and psychopathology. *Journal of Personality and Social Psychology, 53*(2), 327-336.

Sénémeaud, C. & Somat, A. (2009). Dissonance arousal and persistence in attitude change. *Swiss Journal of Psychology*, *68*(1), 25-31.

Taylor, M. & Carlson, S. M. (1997). The relations between individual differences in fantasy and theory of mind. *Child Development, 68*(3), 436-455.

Taylor, M., Cartwright, B. S., & Carlson, S. M. (1993). A developmental investigation of children's imaginary companions. *Developmental Psychology, 29,* 276-285.

Topalli, V. & O'Neal, E.C. (2003). Retaliatory motivation enhances attributions of hostility when people process ambiguous social stimuli. *Aggressive Behavior,29*(2), 155-172.

Tremblay, P. F., & Belchevski, M. (2004). Did the instigator intend to provoke? A key moderator in the relation between trait aggression and aggressive behavior. *Aggressive Behavior, 30*(5), 409-424.

Willoughby, T., Adachi, P. J. C., & Good, M. (2012). A longitudinal study of the association between violet video game play and aggression among adolescents. *Developmental Psychology, 48*(4), 1044-1057.

Wilson, S. C., & Barber, T. X. (1983). The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A. A. Sheikh (Ed.), *Imagery: Current theory, research and application* (pp.340-390). New York: Wiley.

Yoon, G. & Vargas, P. T. (2014). Know thy avatar: The unintended effect of virtual-self representation on behavior. *Psychological Science,* 1-3.