

FACTORING IN GAMER IDENTITY: THE APPLICATION OF SOCIAL IDENTITY
THEORY AND FLOW TO UNDERSTANDING VIDEO GAME VIOLENCE
EFFECTS

A Dissertation

presented to

the Faculty of the Graduate School
at the University of Missouri-Columbia

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

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JULY 2017

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FACTORING IN GAMER IDENTITY: THE APPLICATION OF SOCIAL IDENTITY
THEORY AND FLOW TO UNDERSTANDING VIDEO GAME VIOLENCE
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I dedicate this dissertation to my family who was an integral part in supporting me throughout my academic journey. I thank my sons, Brock and Bennett, for being a constant inspiration to improve myself each and every day. I especially want to thank my wife, Alexandria, you are the support that kept me going and lead me out of some difficult times. Thank you for being there to help me work through everything. I do not know where I would be without all of your support. I love you

ACKNOWLEDGEMENTS

I would like to thank each member of my doctoral committee for their help with the completion of my dissertation. Thank you to Dr. Julius Riles for being able to join my committee during the final year of my PhD and thank you for the detailed feedback on my dissertation. Thank you to Dr. Bruce Bartholow for consistently showing me new ways of approaching my statistical analyses. Thank you to Dr. Benjamin Warner for also helping with my statistical analyses and providing useful tools in the construction of my survey instruments. Finally, thank you to Dr. Elizabeth Behm-Morawitz for all the help you provided to my project. Thank you for helping guide me to completion and consistently challenging me to be a better writer and social scientist. The help that you have all provided has helped me accomplish this arduous task.

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Abstract

The video game industry has become integrated into American lives and has continued to grow at a steady rate. This project utilizes social identity theory, self-categorization theory, and flow theory to examine differences in aggression and processing of video games between three gamer types: non-gamer, casual gamer, and core gamer. A careful review of previous literature was conducted to explore research involving violent video games, various effects caused by video game play, and how video game research has been utilized in conjunction with social identity theory, self-categorization theory, and flow theory. A gap in the literature was identified that most studies focusing on video game effects did not address participants' relationship with video games beyond the amount of time dedicated to gameplay. In past research focused on analyzing gamer identity (Neys, Jansz, and Tan, 2014), non-gamers were excluded from analyses, limiting the conclusions one can make about how video game may affect gamers versus non-gamers differentially. Gamer identity is not unidimensional, rather different types of gamers have a different level of investment in the time they dedicate to video games as well as preferences for what they play. This project explored the idea that gamers may react differently to video game stimuli when compared to non-gamers. *Grand Theft Auto IV* was utilized as a stimulus in an experiment that measured how violence impacts the different types of gamers. The results indicated that core gamers do react to violent content differently than non-gamers and casual gamers in that hostility and empathy are unaffected by short-term exposure to a violent game stimulus for core gamers. This study suggests that core gamers process video game stimuli differently than non-gamers and casual gamers. The mechanisms by which this happens were not

explored, but the consistency of the results provide evidence for unique processing of video game stimulus by core gamers. Results are discussed, and suggestions are made for future research.

Chapter 1: Introduction

As the years have passed since the advent of the first video game, the identity of a gamer has evolved and become more salient in society. In 2003, the Electronic Software Association (ESA) began releasing the essential facts of the video game software industry to the public (ESA, 2003). Approximately 6.9 billion dollars was spent on video games software and hardware combined in 2003 and just last year the total had climbed to 23.5 billion dollars (ESA, 2003; ESA, 2016). These statistics demonstrate the financial power and the wide distribution of video games across the United States, but what they do not tell us what effects video games have on individuals nor how the centrality of the gamer identity influences responses to video games. The present research empirically examines the social identity of the video game player to advance scholarship concerned with studying the gameplay experience and effects of games on cognitions. Establishing a way to examine gamer identity in individuals can give researchers a lens into the attitudes and beliefs gamers hold as well as provide a deeper understanding of how video games affect the individuals who play them.

In the simplest terms, the “gamer” identity is the identity of a video game player. However, not all video game players identify as gamers, and the identity is steeped in cultural conceptions of what it means to be a gamer. The gamer identity is at its heart a social identity that reflects ideas of prototypical gamer behaviors (De Grove, Courtois, and Van Looy, 2015). Consumption patterns, level of commitment to video games, and importance of video gaming to the self-concept are thought to be central aspects of the gamer identity (De Grove et al., 2015). Video game players may self-define as a gamer. However, the gamer identity is more readily adopted by (White) male players, as

prototypical game characters are most likely to be White and male and the game industry often ignores marginalized groups in its marketing and content creation efforts (Shaw, 2012). It is also interesting to note, that when gamers who are more casual in their gaming practices are confronted by their gamer identity they are more likely to deny that aspect of their identity in social situations (Shaw, 2013). The gamer identity is of importance to video game research as it likely affects the relationship an individual has with video games as well as helps to determine how impactful games are on one's attitudes and perceptions. Research provides evidence that higher levels of audience investment with media are related to greater effects of the media (Moyer-Gusé, 2015). Likewise, gamer identity may be important to understanding video game effects.

Despite the salience of the gamer identity to video game research, most research does not adequately define and measure identification as a gamer. Studies primarily measure gamer identity by asking participants to report how many hours a week they play video games and do not articulate the attitude or beliefs that a person who identifies as a gamer may possess. Generally, research tends to tap into only one aspect of the game identity (frequency of game play) and ignores the multi-faceted nature of the social identity. Further, the gamer identity has not been frequently examined in relation to the effects of video games. One way to address this issue is through looking at gamers themselves, and determining if they have different responses to video games based on their identities. Most research takes a random sample of college students and has them react to a game before and after playing it, following the classic pre-test/post-test model. An issue that arises in much of the video game research is that researchers do not take the time to allow gamers to self-identify through thorough questionnaires.

Gamer identity may impact game playing processes as well as reception of game content. While research that has been published may reveal that playing a violent video game for twenty minutes or more results in an increase in aggression, what does it reveal about the players beside general demographic information? Gamer identity should be further considered in video game studies because it is possible, for example, that there are vastly different reactions to violent content when a participant regularly plays video games versus a participant who rarely, if ever, plays video games. Identities are important to take into consideration because of how they can alter perceptions and attitudes (See: Maghrabi, Oakley, & Nemati, 2014).

The gamer behavior and attitude scale utilized in the present study has been developed as a response to the lack of examining gamer identity in video game effects research. In a survey conducted prior to this dissertation, a confirmatory factor analysis demonstrated the accuracy of measuring factors such as enjoyment, replay habits, competitiveness, achievement, and monetary spending across four different identities of gamers (Hoffswell and Behm-Morawitz, unpublished). Non-gamer, casual gamer, and core gamer are the three identities established in this prior work (Hoffswell and Behm-Morawitz, unpublished). In a follow-up survey, it was revealed that when exposed to an article about discrimination against female gamers there were no attitude differences across the identities, but when asked about violence in games and their attitudes toward it, core gamers differed significantly in their opinions toward video game violence when compared to casual gamers and non-gamers (Hoffswell and Behm-Morawitz, unpublished). To further gamer identity research, this dissertation utilizes the gamer types established in my prior research to examine the gamer identity present in the

context of video game perception, state hostility, and the short-term effects of video game violence. Conducting research for my dissertation in this way allows me to further examine the potential impact that gamer identity has on gamer attitudes toward violence. It is predicted that more invested gamers (i.e. core gamers) are affected differently by violent content in video games and are more critical of the argument that video games are too violent, in comparison to non-gamers and less invested gamers (i.e. casual gamers) (Hoffswell and Behm-Morawitz, unpublished). Identity was tested to show that it is a necessary component to video game research and it was utilized to test whether gamers reactions change based on the strength of their identity. This research examines whether invested gamers have greater resistance to effects of video game violence due to motivations and attention selection that may allow them to more effectively handle violent stimuli. This argument is unpacked in this dissertation.

Gamer identity has historically been characterized in an unfavorable light (Paaßen, Morgenroth, and Stratemeyer, 2017). Specifically, the gamer is presented as the nerd and the antisocial (Paaßen et al., 2017). What has been less clear is how the gamer is unique from the nerd that has, as of late, become a positive pop culture representation. As the television show *Big Bang Theory* has risen in popularity, nerds have become more visible and beloved rather than ridiculed. Gamers are different from nerds largely due to the fact that they continue to be stigmatized. Stigma is a concept that was greatly explored in a book titled *Stigma* by Falk (2001). Falk (2001) defines stigma as, "...an invisible sign of disapproval which permits insiders to draw a line around 'outsiders' in order to demarcate the limits of inclusion in any group" (p.17). The book largely explores stigma in various places in American society and focuses on the most prevalent types of

stigma, such as racial stigma, stigma against mental illness, and stigma against homosexuality (Falk, 2001). Falk argues that stigma is largely utilized in American society to ostracize those that are different and label them as deviants. Doing this creates negative perceptions and stereotypes of the stigmatized group, but it can also cause the stigmatized group to band together (Falk, 2001). Stigma for gamers has routinely surfaced when mass shootings have occurred in America, most notably the Columbine shooting (Anderson and Dill, 2000). Anderson and Dill (2000) released one of the first articles that was in direct response to the Columbine shooting that detailed how violent video games make the players more aggressive. This study was the first to make the argument that video games were a large contributor to the aggressive behaviors of young men, and utilized the example of the Columbine shooters modding the video game *Doom* to represent their high school as a reason to be concerned with violent video game play. Gamers were stigmatized after this shooting because of the fact that video games are an interactive medium that required players to make the choices to commit acts of violence in video games. Thus, not only were gamers characterized as nerds or misfits, they were also characterized as antisocial in nature. This stigma continues to be a driving force behind research into violent video game effects and how games negatively impact players. According to Falk (2001), social identity of the gamer may strengthen as stigma persists; thus considering the gamer identity as a social identity has utility. Focusing on gamer social identity and examining the impact a violent video game has on gamers' state hostility may potentially combat this stigma; or at the very least, a deeper understanding of how gamer identification related to video game effects can be garnered.

The subsequent chapters of this dissertation further elucidate and test an argument of gamer social identity and video game effects. Chapter 2 examines the history of video game research, current identity research in relation to video games, and an explanation of how social identity theory is applicable to understanding gamer identification. Chapter 3 explains the methodology that was utilized to conduct the experiment for this dissertation. A pre-/post-test experimental design was utilized to test the short-term effects of highly violent versus less violent video gameplay affected college students' state of hostility. Gamer identity was examined to determine if the effects of gameplay differed based on investment in the gamer identity. The survey instrument also examined how gamer identity affects college students' perceptions of video games as well as their enjoyment of video games. Chapter 4 explores that results that were obtained for the various hypotheses proposed in chapter 2. Chapter 5 discusses in detail the results from the experiment conducted for this dissertation, offers explanations as to why some of the hypotheses did not attain significance, and provides an overview of some of the limitations and ideas for future experiments. Ultimately, this dissertation furthers video game research in communication as it adds a new aspect to video game studies through empirical examination of gamer identity in the context of video game effects.

Chapter 2: Literature Review

Harkening back to the ESA report mentioned in Chapter 1, regular gamers were defined as those that average three hours or more of video game play in a week (ESA, 2016). A recent report on mobile gaming revealed that most mobile gamers spend an average of 33 minutes a day playing mobile games, which is roughly three and a half hours a week (Wawro, 2015). This amount of investment in video games is reflective of a casual gamer. Casual gamers have emerged in large part due to the exponential growth of the mobile gaming market. Although some prior research has investigated gamer identity, more specificity is needed in defining levels of gamer identity and hypothesizing the influence of gamer identity on gameplay experience and effects.

Asking participants how many hours they spend playing video games a day or per week is no longer a sufficient method to separate gamers from non-gamers, because of casual gamers sinking numerous hours into games like Candy Crush and Angry Birds. Mobile games are designed in a way that encourages short play sessions done repeatedly over time, which amounts to significant time being spent on these games. However, many mobile gamers would not consider themselves hardcore gamers, and would more likely fit somewhere between people who do not play video games and hardcore gamers.

A preliminary survey conducted to confirm measures for gamer identity revealed that casual gamers' opinions differed significantly from the opinions of the more invested core gamers (Hoffswell and Behm-Morawitz, unpublished). This reveals that identifying gamers is no longer as simple as asking participants how much time they devote to video games because of the continuously increasing mobile game market. My research is a

response to the rise of the casual gamer as well as prior research on video game effects that fails to acknowledge the role of gamer identity. This dissertation positions itself in a way that will provide researchers with a new and useful way to examine people who identify themselves as gamers. I am utilizing this literature review to demonstrate the progress video game studies has made over the years in examining effects of video game violence, but also critiquing what has been done to demonstrate the need for further gamer identity research.

A Brief History of Game Studies

Studies on video games from 15-20 years ago tended to focus almost exclusively on violence and aggression (See: Dietz, 1998; Dill and Dill, 1998; Funk and Buchman, 1996; Gibb, Bailey, Lambirth, and Wilson, 1983; Scott, 1995; Wiegman and van Schie, 1998). Many of these studies have aspects that could be improved, but still contributed significantly to video game studies. After the horrifying events that transpired at Columbine High School, researchers flocked to violent video games to examine whether or not playing them could drive a person to commit acts of violence. Anderson and Dill (2000) conducted two studies to examine this very fact. Study 1 focused on survey data asking participants how much time they had spent playing video games regardless of game content (Anderson and Dill, 2000). They ultimately found correlations between males who spent more time playing games and more aggressive cognitions, but those same men also had strong correlations toward aggressive personality traits (Anderson and Dill, 2000). Study 2 was an experimental design where players either engaged in a session of *Wolfenstein 3D* or *Myst* and were asked about their thoughts and feelings after completion of the play session (Anderson and Dill, 2000). Both studies ultimately

confirmed what they predicted through the general affective aggression model (which is now known as the general aggression model) and provided evidence for the argument that violent video games create more aggression in players (Anderson and Dill, 2000).

Anderson and Dill argued that the research made the case that violent video games would make frequent players more aggressive at an alarming rate due to the interactive nature and that it was negatively affecting academic ability, as well. These findings were interesting, and demonstrated that video game research needed to be conducted further to see the multiple effects that video game play was having on players during that time. This early contribution creates a clear path that video game studies followed for years to come, but it is important to note that gaming culture was significantly different than it is today. As much as gamer identity could have been useful in Anderson and Dill's study, it would have been very difficult to define based on the video game environment present because during that period the ESA was not collecting demographic data on gamers nor was gaming considered more than a hobby. However, studies involving video games did continue and the claims that aggression would increase after a play session moved on with them.

Violent Video Game Research

Content analyses have been conducted to demonstrate the frequency in which violence, aggression, sexuality and gender differences occur in video game content. Robinson, Callister, Clark, and Phillips (2008) conducted one of these content analyses and focused on character violence and gender differences. One of the most striking statistics that arose out of this particular content analysis was that one hundred percent of mature rated and teen rated game websites depicted violence and sixty percent of

everyone rated games had violence (Robinson et al., p.12-13, 2008). Robinson et al. (2008) took their analysis of violence further and examined exactly how prevalent certain violent acts were on the websites with the leaders being shooting and stabbing, two indiscriminately violent acts (p. 13). Considering these as aggressive acts, other content analyses have revealed additional aggressive acts that frequently occur like profanity (See: Ivory, Williams, Martins, and Consalvo, 2009). Sexuality and race in video games have been explored as well to further demonstrate concepts like racial underrepresentation and hypersexuality in addition to violent video game content (See: Behm-Morawitz, 2014; Downs and Smith, 2009; Waddell, Ivory, Conde, Long, and McDonnell, 2014). These content analyses provide a good backbone to arguments made about the negative effects of video games due to the prevalence of negative subject matter.

Mortal Kombat was one of the first violent video games to garner attention from researchers and politicians alike. As a result, studies have used entries in the series as a violent video game condition. Ballard and Lineberger (1999) did so in their study focusing on college males, utilizing *Mortal Kombat* and *Mortal Kombat II* as violent game conditions compared against *NBA Jam*. In order to measure how aggressive participants were after playing the violent video game, a punishment/reward scenario was given to them after a 15-minute play session (Ballard and Lineberger, 1999). Ultimately, this study provided additional evidence that violent video games increase aggression, and made a further revelation that men gave harsher punishment and less reward to women after playing the violent game (Ballard and Lineberger, 1999). The authors point to this cautiously as a new avenue of research examining the effects of violent video games on

aggression toward women. Caution should be taken when interpreting the results, because the game was competitive in nature, and even though they did not measure it, Ballard and Lineberger (1999) speculated that the increase in aggression due to the competitive nature of the games could have contributed to the gender bias. This study was one of the first to suggest that male gamers may judge women more harshly than non-gamers as well as the fact that competitive play could lead to an increase in aggression.

Anderson picked up the task of further investigating gender and violent video game effects by focusing on how violent video games would affect young women specifically (Anderson and Murphy, 2003). In this study, female participants played *Street Fighter* or *Lemmings* and after playing completed a competitive reaction time task, and then filled out the questionnaire (Anderson and Murphy, 2003). Results for this study indicated that aggression increased in the participants and that covaried with revenge motivated aggression (Anderson and Murphy, 2003). Focusing on women for this study goes beyond the classic stereotype of the angry male gamer, and demonstrates that women can experience aggression increases as well. When focusing on competition, evidence suggested that there was a covariance between aggression and revenge-motivated aggression. This covariance adds another layer to violent video game research as it provides another type of aggression that can be explored when researching violent video game effects.

Anderson et al. (2008) also conducted a cross-cultural longitudinal study to examine if violent video game effects varied by culture. This is a major undertaking, because it compared two of the biggest gaming countries, the United States and Japan.

For both groups of children, physical aggression correlated significantly with habitual violent video game use (Anderson et al., 2008). Due to the large undertaking that was presented by the study, the researchers were only able to administer surveys at two different time points to children in both countries (Anderson et al., 2008). This study furthered violent video game research because it provided evidence that violent video game use can have a lasting effect on the children who frequently play them, and it accomplished this cross-culturally examining the two biggest gaming countries in the world. Out of aggression research emerged the question of whether these aggressive increases were due to loss of emotional sensitivity and another group of research emerged exploring desensitization exclusively.

Desensitization Research

Extending from the research on violence, desensitization became and still is another area of focus for video game violence research. An early article that explored desensitization (Deselms and Altman, 2003) looked at how participants, after playing a video game, would punish hypothetical inmates for their violent crimes. Deselms and Altman (2003) chose to explore video games to extend desensitization research from television to video games. To determine which games were less or more violent, Deselms and Altman counted the number of times there was physical contact between the video games characters during a one-minute period over the course of twenty play sessions (2003). Participants who were male and played the violent video game were found to be significantly more lenient on violent hypothetical offenders (Deselms and Altman, 2003). Women were consistent across all conditions with how much they punished the criminals in the hypothetical scenarios in experiment one (Deselms and

Altman, 2003). Experiment two examined how punishment changed an hour after playing the games and revealed that men continued to lower the punishment and women in the violent video game condition significantly increased the amount of punishment for the hypothetical criminals (Deselms and Altman, 2003). This study demonstrated the violent video game play among men can lead toward desensitization toward violence, but women became more sensitive to violence after violent video game play. This was an early step in research examining desensitization from violent video game play.

Funk, Buchman, Jenks, and Bechtoldt (2003) also examined desensitization from playing violent video games amongst children aged five to twelve years old as opposed to the college students found in Deselms and Altman (2003). Funk et al. (2003) utilized surveys and experimentation to examine if there were long-term effects of violent video game play on children. Funk et al. found that the few children who were part of the video game experiment did not show any significant signs of increasing their lack of empathy or desensitization to violence. Yet, when analyzing the survey data, Funk et al. discovered that children who had been playing violent video games for a long period prior to the survey exhibited lower empathy toward others and greater desensitization toward violence. This finding came from survey data thus causality could not be established, so Funk et al. speculated that it could be that children who lack empathy and who are desensitized could be drawn to more violent video games as opposed to the direct cause being the violent video games. These introductory video game studies examining desensitization were important the establishing the use of desensitization in video game research.

Surveys can be reliable measures for finding data, but researchers always want to go a step further in order to benefit science by establishing causality. Bartholow, Bushman, and Sestir (2006) conducted an experiment examining how desensitization looked when viewing it through brainwaves. Previous research has shown that media violence exposure can cause desensitization to violence, which in theory can increase aggression. However, no study to date had demonstrated this association. In the present experiment, participants played a violent or nonviolent video game, viewed violent and nonviolent photos while their brain activity was measured, and then gave an ostensible opponent unpleasant noise blasts. Participants low in previous exposure to video game violence who played a violent (relative to a nonviolent) game showed a reduction in the P3 component of the event-related brain potential (ERP) to violent images (indicating physiological desensitization), and this brain response mediated the effect of video game content on subsequent aggressive behavior. These data provide the first experimental evidence linking violence desensitization with increased aggression, and show that a neural marker of this process can at least partially account for the causal link between violent game exposure and aggression. Bartholow et. al examined the P300 brainwave and how it fluctuated among participants in an experiment utilizing a non-violent video game and a violent video game (2006). A decrease in this brainwave was shown to be an indicator of desensitization in prior research (Bartholow et. al, 2006). Participants who were categorized as violent video game players provided evidence that violent video game players are desensitized to violence because their P300 waves were significantly lower than those of non-violent video game players. Demonstrating this furthered that

argument that violent video games do lead to desensitization, but a link could not be found to aggression.

Engelhardt, Bartholow, Kerr, and Bushman (2011) took this research one step further and provided the link from desensitization to increased aggression. Evidence was found that suggests that participants who had low exposure to violent video games prior to the experiment showed a decreased P300 wave and increased aggression (Engelhardt et al., 2011). However, this link could not be established between seasoned players of violent video games. This study provides evidence that violent video games lead to desensitization and increased aggression, but it also provides evidence that habitual violent video game players have been conditioned to handle the violent stimuli. These results are interesting, and they are also not the only video game desensitization research that relied on the brain to demonstrate the effects of violent video games.

As it has progressed, video game research has focused on different ways that the brain can be examined while people are exposed to violent content. Granek, Gorbet, and Sergio (2010) utilized functional magnetic resonance imaging (fMRI) to examine video game player's brains and the effect that extensive video game play had on their neural control centers. Specifically they focused on the cortical visuomotor network that is responsible for complex movement planning (Granek et al., 2010). Thirteen gamers and thirteen non-gamers were recruited for the study and clear differences in brain activity were demonstrated (Granek et al., 2010). The gamers' fMRIs revealed that they had to use less brain activity and were more effective at delegating the tasks to different parts of their brains (Granek et al., 2010). This study proves to be interesting, because it focuses on the brain activity of gamers against non-gamers. Examining brain activity helps to get

a biological view of what video game play can do to alter a person who plays them. It also provides evidence that individuals who play video games adapt the skills they learn playing video games to other areas. The most interesting aspect is that the adaptation that gamers experience can be seen in brain scans. This study focuses on a positive aspect of what video games do for an individual's brain. This study did not focus on desensitization as the previous studies, but did further utilize the brain to examine video game effects. However, fMRI did become an instrument used to measure emotional desensitization in later research.

Szycik et al. (2016) utilized fMRI in an experiment in order to examine the brain in more detail and determine if violent video game players were experiencing desensitization to violence. Szycik et al. (2016) recruited men who had been playing violent first-person shooter games for the past two years for at least two hours per day (p. 2) and compared them to control subjects who did not have experience playing violent video games. In order to avoid any priming effects, participants were instructed to not play any violent video games for at least three hours prior to the experiment (Szycik et al., 2016, p. 2). For the experiments that were conducted, participants looked at positively valenced, negatively valenced, and neutrally valenced images (Szycik et al., 2016). Six different areas of the brain were examined and compared between the groups and included the transverse temporal gyrus, superior temporal gyrus, inferior parietal gyrus, middle temporal gyrus, parahippocampal gyrus, and the amygdala (Szycik et al., 2016, p. 5). These various areas of the brain have been shown to activate when there are emotional responses (Szycik et al., 2016). Across both experiments there were no significant differences between violent video game players and the control group (Szycik

et al., 2016). Even though Szyck et al. did not require participants to play a violent video game prior to going into the fMRI, this study demonstrates that players who consistently choose to play violent video games do not experience emotional desensitization. There were only fourteen people per group for each study, but fMRI scans are not subject to any bias from the participant since they cannot actively control which areas of their brains become active when exposed to emotional stimulus.

Prosocial Effects

Aside from arguing whether gamers have become desensitized to violent stimuli, there has also been a group of research that has utilized violent video games as an agent of positive change. One area where video games have proven to be effective tools is in increasing positive attitudes toward outgroup members. Adachi, Hodson, Willoughby, Blank, and Ha (2016) used a violent video game to examine if this type of game would lead to more positive intergroup attitudes. In the study, *Call of Duty: Black Ops* was the game used with the zombies multiplayer to test the effects of playing cooperatively against independent play (Adachi et al., p.260, 2016). Game choice is important to note, because the *Black Ops* series has been noted for its first-person violence. Cooperation boosted positive outgroup attitudes significantly when compared to attitudes held prior to the play session and when compared to the group of participants who played independently (Adachi et al., 2016).

Aside from demonstrating the power of cooperation, Adachi et al., (2016) also revealed that the amount of time needed to achieve this effect is less than fifteen minutes. Participants in the study only played for twelve minutes and still experienced a significant change in attitude (Adachi et al., 2016). This result is informative because it

demonstrates that video games do not require long periods of time to induce changes in participants that are exposed to them in experimental conditions.

Gitter, Ewell, Guadagno, Stillman, and Baumeister conducted an experiment to examine whether a violent video game with an explicitly prosocial objective could nullify the aggressive effects of violent video games (2013). Two variations of a game from the same series, *Evil Dead*, were utilized as the experimental stimuli in addition to *Tetris Worlds* (Gitter et al., 2013). In study two, *Tetris Worlds* was replaced by *SSX 3* (Gitter et al., 2013). Across the two studies that were conducted, evidence was found that suggests a prosocial context, regardless of explicitness, lead to lower levels of aggression and easier accessibility of prosocial thoughts after playing the violent video games (Gitter et al., 2013). Gitter et al. (2013) made this discovery because even in the morally ambiguous *Evil Dead* condition where participants were not protecting any non-playable characters, they still experienced lesser aggression based on the premise of saving the world from demon hordes. This study lends to the experiment for this dissertation because it supports the argument that violent video games can lead to positive outcomes. Violent video games can be utilized as stimuli for experiments that examine positive outcomes for participants, and that they can be tools to demonstrate the positive effects of video games.

Further exploring prosocial video game research utilizing violent stimuli, Tear and Nielsen (2014) conducted a study to see how varying levels of violent video games could impact prosocial behaviors. In their experiment, they did game pairs for non-violent (*Portal 2* and *Modnation Racers*), violent (*Mortal Kombat VS DC Universe* and *God of War III*), and ultra-violent video games (*Mortal Kombat: Komplete Edition* and

God of War: Ascension) (Tear and Nielsen, p.9-10, 2014). Ultimately, the level of violence had no impact on prosocial behaviors after participants played the games (Tear and Nielsen, 2014). This study provides evidence that prosocial behaviors can remain the same and are unaffected by violent content, but the study did have an overwhelmingly male sample (Tear and Nielsen, 2014). The contribution made by the article is important due to the evidence it provides that violence does not affect prosocial behaviors, but it also provides evidence that gamers process violent stimuli differently, because these players remained unaffected by the violence that they were exposed to for the experiment. Exploration of how video games impact prosocial behavior leads into questions and criticisms that have been made about violent video game research.

Questions Raised About Violent Video Game Research

There are researchers that argue that the debate about violent video games increasing aggression is unfinished. *Grand Theft Childhood: The Surprising Truth About Violent Video Games and What Parents Can Do* offers an analysis of violent video games and their effects on children (Kutner and Olson, 2008). Kutner and Olson (2008) took a more in-depth look at outlying factors that could influence the increase in aggression among children who play violent video games. Results demonstrated that when physical abuse, volatile environments, and verbal abuse were controlled for, the significant increase in aggression disappeared among the children that were surveyed (Kutner and Olson, 2008). Another revealing result from the survey that was conducted was that children who came from more abusive environments actively sought out violent video games (Kutner and Olson, 2008). This is potentially insightful, but Kutner and Olson

(2008) operated off survey data, and did not conduct any cross-sectional studies examining the effects immediately following violent video game play.

Even though the previous studies that have been examined focus on college populations, questions about family environment growing up and history of abuse can still be added to surveys and experiments involving violent video games. What Kutner and Olson (2008) suggest is that these factors should be considered when dealing with children and their exposure to violent video games. Kutner and Olson (2008) also found that if a parent was involved with violent video game play and actively engaged their children while they were playing violent video games, the aggressive increases still happened, but were not significant and rejected the hypothesis that violent video games significantly increase aggression. Results from these studies do not apply as readily to a college or adult participant pool, but the ideas they convey could be converted into past family history with adult participants. Although the studies conducted for this dissertation do not include questions like the ones utilized by Kutner and Olson, it is exploring the idea that direct outcomes like increases in aggression are moderated. A content analysis from the same year as *Grand Theft Childhood* reveals that game companies continue to stick with what has worked for them in the past (Robinson et al., 2008).

Individual Differences in Video Game Research

Through exploring individual differences, there is a possibility of being able to distinguish the different gamer types by these traits. This exploration would provide another way for researchers to explore the impact gaming has on an individual's life. What was found is that gamers who suffer from internet gaming addiction are higher in

neuroticism, low in extraversion, low in conscientiousness, while agreeableness and openness failed to show any relationship with video game behavior at all (Braun, Stopfer, Müller, Beutel, & Egloff, 2016). Additionally, there was an attempt to link different genre preferences to the big five personality traits, but few results were found (Braun et al., 2016). Only one result presented a real significance and that was the players who preferred action games and violent games were low in neuroticism while gamers who preferred role-playing games were significantly higher in neuroticism (Braun et al., 2016). These results actually contradict prior research making the claim that playing violent games is something that those high in neuroticism seek out (Braun et al., 2016). This study is interesting for the unique approach that it takes, but the main differences that were found were between gaming addicts and non-gamers. There was little significant difference between the addicts and gamers, which ultimately demonstrates that using personality or addiction may not be the best route to follow when trying to distinguish the differences between gamers. However, the indication that non-gamers had significantly different personality traits from gamers and addicts demonstrates that gamers may not share the same world-view as non-gamers. Examining the research demonstrates that a focus on differentiating gamer types has been a recent development in video game research. Unfortunately, the way gamer types or identities have been used also present missed opportunities for researchers.

Another caveat of violent video game research is found in an article that focuses on how difficulty of a game can impact reactions to violence in video games (Kneer, Elson, and Knapp, 2016). In the article, Kneer et al. (2016) focus on what level of difficulty can do to physiological responses to violence as well as the influence on

aggression after playing the video game. Their results revealed no physiologically significant reactions in any of the four conditions. They found that in both conditions fun, satisfaction, pleasure, interest and number of kills were significant predictors for positive emotions (Kneer et al., p. 146, 2016). Experimental design in the project is sound, but instead of being a 2x2 design it should have been a 2x2x2 design. Kneer et al. (2016) could have easily added an experimental group of non-gamers against gamers to examine how their experiment would have affected these two groups in the conditions that they had created. This article does offers a method that can be useful for researchers and theorists that feel gamer identity does not play a large role in reaction. Physiological responses can give a potential unbiased look at reactions to video games, whether a person identifies as a gamer. That strengthens this study overall, but until research is conducted specifically utilizing identity before stimulus exposure, there is no way to know for certain if physiological measures will keep their unbiased nature.

Moving on from general studies in video games, one of the main arguments made in the introductory chapter is that identity is important. This area of research among video game studies is new, and to demonstrate that priming identity can be an effective way to manipulate participants, studies examining race and ethnicity are incorporated to show that it is possible to prime an identity and shift attitudes and behaviors.

Examining the Identity of the Video Game Player

The present research is not the first to utilize gamer identities as a measure of categorization in game studies research. Gamer Identity Strength (GIS) is a measure created specifically to gauge how salient gamer identity was to participants in experiments that were conducted (Neys, Jansz, and Tan, 2014). GIS ultimately is divided

into casual gamers, heavy gamers, and hardcore gamers (Neys et al., 2014). There is an issue with their choices, mainly due to the fact that Neys et al. (2014) did not utilize any sources from the gaming community to explain the definitions and divides between groups that they created for the GIS. As a result, GIS feels somewhat disconnected from gaming culture. My research attempts to improve on the external validity of GIS gamer identities by utilizing definitions that are popular and authentic among gaming magazines and websites. Additionally, I include non-gamers in this research, because when conducting convenience sampling experimentation scholars need to be able to include non-gamers and explore how they react to the same stimuli that are given to active gamers. That comparison is important, because non-gamers may process video game stimuli differently than gamers. A useful contribution that came from the GIS article is the incorporation of self-determination theory to examine the self-motivation of different types of gamers (Neys et al., 2014). The study found a positive association between strength of gamer identity and competence, autonomy, enjoyment, and relatedness (Neys et al., 2014).

Typically, research that has been explored identity in video games has not focused on how identity impacts attitudes of self-identifying gamers, but has actually been focused on how players incorporate the identity of gamer into their own lives. Martin (2012) conducted a study examining how gaming identity among high school-aged male children impacted their information horizon map. In this instance, the information horizon map was created by asking participants to describe a time they had an information need related to their gameplay and an information need unrelated to game play (Martin, 2012). They were then instructed to draw connections between the

information needs and how they met the information need (Martin, 2012). Aside from drawing out the map, they also had a conversation about how to meet difficult information needs and the overlap between doing this for game and non-game information needs (Martin, 2102). The purpose of doing this was to examine how gaming identities potentially impacted how the children were faring in a traditional school environment (Martin, 2012). Only eight children were interviewed and used for this qualitative study, and it was revealed that their identities as it related to their gaming in *World of Warcraft*, was in a constant flux state, meaning that their identities were constantly shifting which in turn impacted where the children were seeking out information (Martin, 2012).

Another study examined an individual game player and how his gaming identity could be utilized as a piece of information for teachers to use to help him with the learning process (Bricker and Bell, 2012). Bricker and Bell (2012) focus on one player and observed him while he played video games with his friends to examine what drove him to become an expert *Halo* player. GodMode is the gamertag the player gave for himself due to his extreme self-confidence in his game playing style (Bricker and Bell, 2012). This is a different use for identity than in the study mentioned previously, but their research also demonstrates the power that the gamer identity can have on an individual, since Bricker and Bell saw the individual's gamer identity as a means for helping them be more successful in school. Aside from these qualitative studies, there has been additional research that looks at gamer identity quantitatively.

A quantitative study focusing on identity among MMORPG players revealed that identifying as a gamer and being a member of a guild both had a significant impact on

social identity (Guegan, Moliner, and Buisine, 2015). The study done by Guegan et al. (2015) was split into two parts, the first of which interviewed guild members through in-game chat as opposed to doing a traditional survey. This made it possible to determine if the environment in which players were interviewed had any impact on their opinions. The second study focused on in-group/out-group preferences for *World of Warcraft* players that were members of an active guild (Guegan et al., 2015). Ultimately, this particular study did not reveal anything about how impactful identity is for the players, but it did reveal that there is a clear in-group preference for guild members, and that the use of a survey and interview are equally effective methods of investigating these preferences (Guegan et al., 2015). There was not a significant difference for favoritism for guild members no matter if they were asked in the game or outside of the game (Guegan et al., 2015). This research provides evidence that the gamer identity is salient among gamers even when they are not amid playing a game. Making gamers play games is not a necessary component to make their gamer identity salient. This underscores the potential utility of the present research for video game studies. Beyond these studies focusing on gamer identity, there has been no research conducted where gamer identity was primed among participants, but there are research studies where different identities have been primed to test hypotheses.

The previous articles focused on identity and gamers, but there is another line of research that focuses on identification during gameplay. Identification research is very different than identity research, because it examines whether players identify with the characters they encounter in the video games they play. A recent example of the difference between identity and identification is an article that examined the impact that

identifying with a male game character who exhibits violent and sexist behaviors would have on participants who played the game (Gabbiadini, Riva, Andrighetto, Volpato, and Bushman, 2016). Their results demonstrated that male players who identified with the game character increased in their masculine beliefs, which in turn lowered their empathy toward female victims. This article does demonstrate the power that violent video games that also exhibit sexist behavior can have, but it is only for the players who identify with the game characters. This is different from their gamer identity, because the participants who identified with the characters could have been a mixture of gamers and non-gamers. However, it is not possible for them to make claims on people who identify as gamers specifically because Gabbiadini et al. did not ask for their participants to self-identify as a gamer.

Focusing on identification does explain why people are drawn to certain characters from games, or become fans of a character, but it does not explain the impact self-identifying as a gamer has on a person's attitudes and beliefs. Shaw (2012) explored the importance of gamer identity among marginalized groups, who were outside of the straight white male group that is often associated with gamers. In addition to that, Shaw (2012) points out how it has been consistently revealed that the gaming audience has become more diverse, but the primary purpose of this study was to explore how marginalized gamers still identify as gamers, even though they are not represented in the games they play. Shaw (2012) could interview 27 gamers about why they identified as gamers, and how they felt about rarely being represented in the games that they play. Through these interviews, Shaw (2012) demonstrated that people who self-identify as gamers do not care if they can share identification with game characters on a base level

like appearance, but want to identify with their favorite character's personality traits. This demonstrates that people who are a part of the gamer identity are not superficial and could potentially be unaffected by factors like appearance. Interviews with the participants also revealed that the gamers from marginalized groups had no issue navigating online gaming and communities (Shaw, 2012). Many of the interviewees had created strategies to draw out other gamers who act discriminatory so they could block interactions with them (Shaw, 2012). The primary narrative that came across from the interviewees is that they just wanted to game in peace and not be singled out because they belong to a marginalized group (Shaw, 2012). This article shows, that, while it is important to do research on these marginalized gamer groups, it is more important to make sure research is inclusive of all gamers. Research focusing on these groups can miss how they interact with the larger gamer group. This article also demonstrated that being a gamer melds multiple identities across different groups all because the people in the groups enjoy gaming. These recent examples of identity and identification research provide evidence of the importance of these concepts to video game research.

A Typology of Gamer Identity

As noted earlier, the present research aims to fill some of the gaps in video game research by developing more authentic definitions of gamer identity as well as considering how gamer identity is related to video game attitudes and effects. The present research builds on prior research, such as GIS (Neys et al., 2014) and Shaw's (2012, 2013) work on gamer identity.

The present research inserts itself in the middle ground between researchers who argue that violent video games lead to increases in aggression and those who make the

argument that violent video games have no effects. In this case, the middle ground is an argument that there are effects from playing violent video games, but that these effects are not necessarily negative, such as an increase in aggression or desensitization to violence. When accounting for gamer identity, a more nuanced picture of video game violence effects may emerge, such that gamers and non-gamers experience differentiated effects from the violent content. Taking a social identity approach, the present research argues there are three distinct groups of people when it comes to video games: the non-gamer, the casual gamer, and the core gamer. The present research thus expands on GIS by including rather than excluding the non-gamer in considerations of gamer identity and video game effects. Excluding non-gamers removes a population that may provide support for arguments that gamers process and react to game stimuli differently than their non-gamer peers. Additionally, the present research improves upon GIS because it utilizes the gaming behavior and attitudes (GBA) scale, which was created from a combination of academic and industry discussion of gamers (Hoffswell & Behm-Morawitz, unpublished).

The present research draws its definitions of the different types of gamers from studies such as those by Neys et al. (2014) and Shaw (2012, 2013), with a portion also coming from video game oriented websites. A frequent theme of articles that reoccur on gaming websites is what constitutes the difference between a casual and a hardcore gamer (Adams, 2000; Hawkins, 2013; IGN Entertainment, 2011; Kabrick, 2013; Lawrence, 2011; Lien, 2013; Nelson, 2013; Poon, 2011; Siegal, 2014; Siegel, 2008). Each of the articles referenced has a different name for each type of gamer but two to three primary gamer types consistently emerge: the casual, the core, and the hardcore.

None of the articles explicitly defines non-gamers, although they provide examples and interpretations of casual, core, and hardcore gamers. For example, according to Kabrick “a casual gamer has a casual attitude to gaming. It is something of a light hobby, used primarily to unwind and relax” (2013). Siegal explores the idea of mid-core, which matches up with the core gamer definition of the GBA scale: “You might love MMOs, but you do not have the time (or patience) for eight-hour quests. You might own the latest consoles, but you might not finish every single game you buy” (2008). Finally, regarding the characteristics that distinguish core from hardcore gamers, Lawrence says, “Platforms maketh not the hardcore; the attitude, depth of interest in games (and topics surrounding games) and sheer amount of gaming hours maketh the hardcore gamer” (2011). By examining the industry articles and combining what gaming journalists have explored with some of the prior research, the GBA scale offered definitions of four types of gamers, including non-gamers, who had been excluded by the GIS and the industry articles. Although the present study only examines non-gamers, casual gamers, and core gamers, it is important to understand the origins of the GBA scale: as this instrument originally distinguished the four types of gamers, it is important to discuss them all.

First, and perhaps most simply, the **non-gamer** is a person who does not play any digital games. They do not play arcade, console, computer, or mobile games. A non-gamer may have played video games at some point but at the current time does not play at all and does not consider video games as a part of their identity.

Second, the **casual gamer** is a person who plays games that have short play times per round/level. This person may or may not own a video game console and primarily plays games on their phone, tablet, or internet browser. They play various types of games

and may own some games. Typically, this person is looking for games that do not require a large time investment per each session of play in which they engage. They play “casually” and without any significant personal integration in their self-concept. Casual gamers do not generally follow what is happening within the video game industry (Nelson, 2013).

Third, the **core gamer** is a person who is more invested than the casual gamer and owns at least one video game device (this includes PC, laptops, or tablets dedicated to gaming). They typically have a favorite genre of game. They own many games but only finish them about half the time. This gamer really enjoys video games, but might not always have the time to devote to long play sessions. This gamer will play online matches with other gamers sometimes, but most likely only spends a few hours a week playing online, if at all. Typically, a core gamer plays for sessions that last from 30 minutes to two hours. This gamer will sometimes wait for price drops before buying new games or consoles. They play various game types. Core gamers are familiar with what is going on within the video games industry but do not possess the ability to complete games in a short period of time (Nelson, 2013; Siegal, 2014; Siegel, 2008).

Fourth, the **hardcore gamer** is a person who owns at least one video game console (this includes PCs, laptops, or tablets dedicated to gaming). They also have a favorite genre of game, own many games, and almost always finish them. They may also spend over eight hours per week playing games online or offline. Typically, this gamer will spend two hours or more playing games per play session. This gamer also typically buys games when they are first released, or shortly thereafter (Hawkins, 2013) and plays various game types.

In my prior GBA research, gamer identity was a categorical variable that was self-selected by the participants, in addition to their identity being assessed via a series of attitudinal and behavioral video game questions. Participants were provided with definitions of these four identities and asked to select the identity that they most identified with at the present time (Hoffswell & Behm-Morawitz, unpublished). The results of the unpublished study (See Tables 1 and 2) revealed through Tukey post hoc tests that core and hardcore gamers did not differ in their opinions concerning games. The present research used this finding to decrease the different gamer type groups by one, creating three identities. As core and hardcore gamers did not differ on the attitudes that are relevant to the present research, those groups were combined, leaving three groups, namely non-gamer, casual gamer, and core gamer.

The GBA scale has not been definitively demonstrated in a published work; however, initial test of the GBA scale obtained a good model fit across five dependent variable groups ($SRMR = .617$, $CFI = .915$, $RMSEA = .069$ [.064-.074]). The dimensions examined in the first study were players' (1) attitudes toward competition in video games, (2) enjoyment of playing video games, (3) spending habits on video games, (4) replaying video games, and (5) achievement in video games. A one-way analysis of variance (ANOVA) was conducted to examine the group differences. Table 1 contains the mean and standard deviations for the variables examined.

Table 1

Means with SD for GBA Measures

<u>DV</u>	<u>Gamer Type</u>			
	Non-gamer _a (N=58)	Casual _b (N=57)	Core _c (N=52)	Hardcore _d (N=67)
Enjoyment	2.92(.79) _{b, c, d}	3.67(.56) _{a, c, d}	4.15(.47) _{a, b}	4.08(.64) _{a, b}
Competition	2.82(1.13) _{b, c, d}	3.54(.75) _{a, c, d}	3.82(.78) _{a, b}	3.95(.66) _{a, b}
Replayability	2.61(1.30) _{b, c, d}	3.63(.61) _{a, c, d}	3.74(.72) _{a, b}	3.78(.76) _{a, b}
Achievement	2.56(1.22) _{b, c, d}	3.25(.68) _{a, c, d}	3.63(.61) _{a, b}	3.85(.58) _{a, b}
Money Spent	2.79(.46) _{c, d}	2.90(.51) _{c, d}	3.31(.69) _{a, b}	3.58(.63) _{a, b}

Subscript numbers indicate group significant differences.

Group differences were found for all the categories and can be seen in Table 2.

Table 2

Results from ANOVA of GBA Measures

<u>Variable</u>	<u>Difference</u>	<u>Sum of Squares</u>	<u>Df</u>	<u>Mean²</u>	<u>f</u>
Enjoyment	Between	55.57	3	18.52	46.23*
	Within	92.14	230	.401	
	Total	147.71	233		
Competition	Between	44.18	3	14.73	20.60*
	Within	160.93	225	.715	
	Total	205.10	228		
Replayability	Between	53.35	3	17.78	22.64*
	Within	179.86	229	.785	
	Total	233.21	232		
Achievement	Between	54.64	3	18.21	27.48*
	Within	146.48	221	.663	
	Total	201.12	224		
Money Spent	Between	24.84	3	8.28	24.82*
	Within	76.74	230	.334	
	Total	101.58	233		

*= $p < .001$

A post hoc Tukey test revealed significant differences between non-gamers and all types of gamers in all these categories except spending habits, in which there was no difference between non-gamers and casual gamers. Tukey tests also revealed that casual gamers differed from core gamers on spending habits, achievement, competition, replay, and enjoyment. Core gamers and hardcore gamers did not show any significant

difference in attitude toward video games across the dependent variables. The second portion of the introduction of the GBA scale explored the idea of fear of an increase in aggression. A one-way between subjects' ANOVA was conducted to compare the impact of gamer type on the fear of video games increasing aggressive behavior. There was a significant impact of gamer type on the fear that video games will lead to increases in aggression at the $p < .05$ level for the four types [$F(3, 230) = 9.795$]. A post hoc Tukey test revealed that fear of video games increasing aggression was non-existent for core gamers and significantly lower than with casual gamers and non-gamers.

The survey was informative and provided a good base for advancing measurement of gamer identity, and demonstrated the different gamer types could be used as experimental groups in video game research. The survey also demonstrated another caveat of the GBA scale, namely that core and hardcore gamers should be combined into one group. The lack of difference could possibly be because of poor definition but a manipulation check was utilized for the question "Which type of gamer are you?" This was a 0-100 scale that gives participants a number range for each gamer type as well as non-gamers; participants were eliminated if their self-selection did not match their number rating. If the identity selection and the self-rating on the 0-100 scale did not match, then the participants in question were eliminated because of their lack of understanding of the gamer type definitions. This 0-100 scale is not used in the present research, however it served as a check in the development of the GBA scale. Ultimately, this dissertation serves to further apply the GBA scale and explore how different gamer identities influence reactions to different video game stimuli. Even in the brief survey with confirmatory factor analysis that was conducted, a clear difference was shown

between the non-gaming population, casual gaming population, and core gaming population (Hoffswell & Behm-Morawitz, unpublished). These differences need to be further explored, and once violence has been examined, the GBA scale can be utilized to explore more effects and ascertain whether they have the intended effects for gamers as well as non-gamers.

Aside from the gamer definitions, this dissertation offers ways to consider experimentation procedures. First, the gamer identity found by using the GBA with social identity and ingroup bias scales can be utilized to create experimental groups, or simply to examine group differences. This means that if a researcher is curious about how non-gamers react to a single stimulus, they can carry out between-group comparisons to ascertain whether there is a difference between the reactions of non-gamers and the three types of gamers (casual, core, and hardcore). For example, if a researcher hypothesized the reactions that gamers would have to an article about sexism, non-gamers could be used as the control group.

Each group category can be used as an experimental group for a multi-stimulus experiment to add another layer to a study. Researchers can compare how each group assigned to each different stimulus reacts, and can then take the research a step further to look at exactly how the different gamers react, as well as the non-gamers. This second method will be particularly useful in experiments using video games but can also be expanded to other areas of research. Researchers, in general, can utilize this gamer identity approach to examine how the gaming community reacts to things such as television, politics, film, and fandoms, to name a few areas.

Gamer type can also be used as a moderator to see what indirect effects occur on different outcome variables. Aside from leading direct effects, gamer identity is versatile because it can be used as a moderator. For video game studies, gamer type can be used as a moderator to examine how different game stimuli affect different outcome variables. Beyond video games, future studies can further explore the applicability of gamer identity and utilize the GBA scale to find evidence for other biases that may exist among people who self-identify as gamers.

Examination of social identity theory provides theoretical grounding for understanding how gamer identity may function in video game research and offers further psychological explanation.

Social Identity Theory and Gamer Identity

Social identity theory originated in the late seventies to examine how people formed social groups and how these social groups influenced their relationships with others who were not a part of their particular social group (Turner, Brown, & Tajfel, 1979). Social identity theory posits that our individual self-concepts are closely tied to group memberships (Turner et al., 1979). As individuals, we strive for ingroup positive associations to make ourselves feel better. People who are members of small outgroups try to move into larger ingroups and emulate ingroups to try to join them. Ingroups also develop biases toward outgroups. Turner et al. (1979) defined ingroup favoritism as “...any tendency to favor the ingroup over the outgroup, in behavior, attitudes, preferences, or perception” (p. 187). Turner et al. (1979) made a distinction between favoritism and bias and argued that when bias is present, a value judgment has to be made, and that bias is, in fact, when discriminatory behavior takes place between an

ingroup and outgroup. They also argued that in the search for positive distinctiveness, four conditions arise that lead to ingroup bias:

(a) individuals must be subjectively identified within their ingroup, they must use it to define their self-concept; (b) the dimension or attribute involved in intergroup comparison must be important, relevant or salient in a given situation; (c) the salient outgroup must be perceived as a relevant comparison group; there must be some compatibility (in Festinger's 1954 sense) between ingroup and outgroup; (d) the actual positions of ingroup and outgroup on the comparative dimension—whether defined consensually or by non-social criteria—must be subject to some ambiguity. (p. 190-191)

To demonstrate these tenets of social identity theory, Turner et al. (1979) carried out a monetary reward experiment to determine whether competition was a necessary factor to activate ingroup favoritism or bias. Their study found that even when there was no mention of competition between the ingroup and outgroups, participants would favor their ingroup and assign the maximum difference in points to benefit from the money on offer. This study is abstract in terms of real-world ingroups and outgroups but clearly demonstrates that something as arbitrary as being assigned to a group can create a bias. What is most interesting is that if an outgroup is more relevant to the ingroup, the bias increases significantly (Turner et al., 1979). Another finding from the study was that the amount of the reward has no impact on ingroup favoritism at all, which means that bias cannot be influenced by reward because of its strength (Turner et al., 1979). This study paved the way for future social identity research and demonstrates an important aspect of this type of experimental research. In this experiment, participants were assigned to

groups as opposed to joining groups, which begs a question: if being assigned to a group creates a bias, then how much of a bias emerges when someone willingly joins a group because of their personal identification within the group?

Brewer (1991) expanded on the idea of an individual being able to self-select their own social identity. Brewer argues, “Membership may be voluntary or imposed, but social identities are chosen.” (p. 477, 1991). The ability to choose opens social identity to different aspects of society like sports fandom and brand fandom. A social identity of a fan cannot readily be imposed on another individual if they are not actively and outwardly expressing their fandom. This argument, alongside the discussion of stigma in Chapter 1, provides the basis for choosing to utilize social identity theory as a theoretical grounding for this dissertation. Gamers voluntarily choose the social identity of the gamer, and do not have the identity imposed upon them by other social groups. Aside from arguing that social identities are chosen, Brewer (1991) also argues that social identities shift and change dependent upon the given context of any social situation. The fact that identities shift and change could provide an explanation of why the casual gamer in Shaw’s (2013) article was unwilling to talk about their gaming behavior in social situations. Brewer’s argument was further expanded by Barreto and Ellemers (2003) through their discussion of the differences between self-selected identities and prescribed identities.

Barreto and Ellemers (2003) argue that people do not necessarily accept social identities that have been assigned to them, but they willingly accept the identities that they have self-selected. The most evident reason that Barreto and Ellemers (2003) cite is that previous studies that have forced group selection (e.g. assigning participants a red or

yellow group) have had less power in the results than studies that examined groups that naturally occur in society. Groups where a person was a self-selected member had more impact than the laboratory imposed groups. This is a powerful contributor to this dissertation, because the argument demonstrates that having gamers self-identify is going to be a more accurate representation of their gamer identity. It does not matter if the individuals in the experiment have been labeled gamers by society, but what matters is that the participants see themselves as gamers. This idea has been expanded upon in research exploring sports fandom, as well as a few articles that have explored gamer identity.

Heere and James (2007) utilized self-selected social identity to create a scale that would examine how people identify with their favorite sports teams. The scale that was created was valid and passed a confirmatory factor analysis (Heere and James, 2007). The purpose of creating the scale was to be able to group fans together and examine how they incorporate their favorites sports teams into their overall social identity (Heere and James, 2007). Heere and James (2007) found that sports fandom was comprised of six different dimensions: public evaluation, private evaluation, interconnection of self, sense of independence, behavioral involvement, and cognitive awareness (p.65). Heere and James created this measure in order to understand the concept of team identity more thoroughly. Team identity, much like gamer identity, is a self-selected social identity that is created when a person becomes a fan of a sports team. Through creating a measure to examine team identity it allows examination of the impact of the fan social identity. This measurement was further applied to examine how fans react to sports stars in various situations.

Fink, Parker, Brett, and Higgins (2009) utilized the team identity scale in order to look at fan reactions to public sports figures behaving negatively in public. One of the interesting aspects of team identification is that it allows for what is known as a black sheep effect, which essentially allows fans to ignore bad behavior of athletes because they are not representative of the team (Fink et al., 2009). The creating of the black sheep effect allows for fans to maintain their love for their team, even in the face of negative coverage of a singular athlete from the team (Fink et al., 2009). This is an interesting concept that could potentially apply to gamers when they encounter a poorly made video game or encounter a fellow gamer who exhibits what they deem to be poor behavior. The black sheep effect also aligns with Brewer's (1991) argument that social identities can shift at any time to accommodate for different contexts. In their experiment, Fink et al. (2009) examined what would happen to team identity when presented with a weak response from the team leadership or a strong response from the team leadership. In the strong response scenario, the article that participants read would quote team owners and coaches as reprimanding and suspending the player that engaged in poor behavior (Fink et al., 2009). In the weak responses scenario, the team leadership seemed aloof and did not care about the poor behavior of the athlete (Fink et al., 2009). The black sheep effect emerged in the strong leadership condition because participants would have reinforcement that the athlete was not representative of their team, but in the weak leadership condition the black sheep effect could not take place and as a result team identification decreased (Fink et al., 2009). This article demonstrates that social identity can be a highly sensitive construct of the self. Simply by altering leadership decisions, a negative impact was created upon team identity. This also demonstrates some evidence

that morals may have a stronger influence on social identity and could possibly be manipulated to alter social identity. These articles on sports fans and their social identities provide evidence that self-selected social identities are just as strong as prescribed social identities. They also demonstrate part of Brewer's (1991) argument that social identities are fluid and can shift easily. Moving on from sports fandom, there are some researchers who have explored social identity in gamer populations.

Neys, Jansz, and Tan (2014) utilized social identity theory as one of the main explanations for creating the GIS scale. Discussing the GIS, Neys et al. (2014) explained that when a social identity group forms, it often does so around shared social practices that bring members together. Gamers come together because they enjoy playing video games and find it to be an engaging and useful way to spend their time. The GBA scale by Hoffswell and Behm-Morawitz (unpublished) provided evidence that gamers have a distinct social identity, because it showed clear differences in the gaming behavior of non-gamers, casual gamers, and core gamers. The distinct identities that emerged were that of the casual gamer and core gamer. Originally the GBA scale posited that there were 3 distinct gamer identities with casual gamer, core gamer, and hardcore gamer, but as the results revealed there were little differences between core gamers and hardcore gamers. Core gamers had significantly more favorable attitudes toward video games when compared to casual gamers and non-gamers. Casual gamers had significantly more favorable behaviors and attitudes toward video games than non-gamers, but the difference was not as drastic as core gamers. These two unique identities demonstrate that the gamer identity has evolved to create differing ingroups. Social identity theory provides a mechanism by which to group gamers, such that they can be compared to

outgroups such as non-gamers. In fact, gamers demonstrate their ingroup bias very publicly, drawing negative attention when the gamergate movement arose.

For gamers, there is a clear ingroup bias in the terms they use, their attitude toward critics, and attitudes toward outsiders who are invading their community. A clear example of this is the rise of gamergate and the resistance to diversification that has emerged among gamers (Todd, 2015). People who have joined the gamergate movement have notably harassed female game developers as well as scholars (Todd, 2015). The “boys club” that was formed many years ago through video games is no longer existent, but gamergate members are trying to maintain it under the guise of seeking journalistic integrity in video game journalism (Todd, 2015). The division that has been seen among gamers because of gamergate provides evidence for the argument that the social identity of the gamer has been fully integrated into society. It reveals the gamer identity has become salient enough amongst ingroup members to allow them to branch off into specialized groups that differ from the dominant gamer identity group. There is a group of gamers who love playing video games and have created friendships and relationships based in their community, and the next natural step of social identity formation is for outgroups to be created. For gamergate, an outgroup of misogynistic angry gamers banded together to combat the wider group of gamers that has become inclusive of people from all walks of life. At the same time, casual gamers have also become a new group in the gaming community, because of the rise of smartphones and the promotion of gaming apps that take only a little time to play per session. This establishment of the gamer as a social identity, as well as the differentiation amongst gamer identities, lays the

groundwork for understanding why core gamers, casual gamers, and non-gamers may have different perceptions and responses to video games.

Przybylski and Weinstein (2016) confirmed that attitudes toward video games are largely based on first-hand experience with them. Przybylski and Weinstein (2016) first examined how mere exposure to electronic games impacted internally consistent views of games, and then examined what views were consistent with empirical findings of game studies. Results obtained from the survey provided links between age, exposure to video games, and individuals' attitudes toward games (Przybylski & Weinstein, 2016). As age went up, so did negative attitudes, and as exposure went down, negative attitudes went up (Przybylski & Weinstein, 2016). This study provides another piece of evidence for the argument that non-gamers have significantly different attitudes toward games than gamers, and that non-gamers do not process games in the same manner in comparison to the gamer ingroup. This study furthers the argument that there are differences in attitudes between non-gamers and gamers, and confirms the importance of the GBA (Hoffwell & Behm-Morawitz, unpublished), as it suggests that behavior and attitude measures should be combined with social identity measures to give a more accurate depiction of a social identity that is based on a media form. Examining individuals' attitudes and behaviors, as well as social identity, can help to further identify gamers who may not openly indicate their gamer identity. Self-categorization theory expands on social identity theory and bridges the gap to offer an explanation why a difference emerges between casual gamers and core gamers.

Self-Categorization Theory

Self-categorization theory extends social identity theory and explains why individuals within ingroups were able to differentiate (Turner, Hoggs, Oakes, Reicher, & Wetherell, 1987). The principal idea in self-categorization theory is that individuals can abstract their social identities based on how they self-categorize themselves (Turner et al., 1987). If a person is more likely to categorize their social identity in terms of “I” or “me,” then they are more likely to see themselves as a singular entity within their social identity which is known as the interpersonal level (Turner et al., 1987). If a person is more likely to categorize their social identity in terms of “we” or “us,” then they are more likely to be inclusive of their social identity and ascribe the classic ingroup versus outgroup ideal of social identity theory (Turner et al., 1987). A person at the “we” abstraction level, which is also the intergroup level, of self-categorization theory will see themselves as part of the collective group and will uphold the group beliefs and ideals against outgroups (Turner et al., 1987). There is a third level of abstraction that goes above the “we” level and includes all humans in comparison to other lifeforms and is known as the superordinate level; however, the third level does not lend itself to the argument presented by the present study (Turner et al., 1987).

Self-categorization theory lends itself to the present research as it helps to explain how the identity of the core gamer may be distinct from the casual gamer. Research has not addressed the difference between the casual gamer and the core gamer experimentally; however, gaming journalism articles have examined the differences in addition to the GIS (Neys et al., 2014). For research, creating an overall gamer identity is not sufficient: a casual gamer can spend as many hours as a core gamer playing video

games but their beliefs and attitudes toward video games are different, thus representing differing levels of abstraction. Self-categorization theory, coupled with social identity theory, precludes this problem because it allows for casual gamers to be able to disagree on many facets of gamer behaviors and attitudes, whereas core gamers tend to form their identity around these facets. For self-categorization theory, casual gamers may fall into the interpersonal abstraction level because they will disagree with many of the facets of the core gamer ingroup, but are still a part of that ingroup. Casual gamers fall into the interpersonal abstraction level, because they do enjoy video games, but they may not openly label themselves as gamers nor will they always share similar attitudes with core gamers. Core gamers will fall into the intergroup abstraction level because they operate more collectively and will band together to oppose outgroups. Core gamers exhibit the intergroup abstraction level of behavior because they will openly identify as gamers, and exhibit similar attitudes to other core gamers. These two levels of abstraction offered through self-categorization theory provide an explanation of why the gamer social identity is less salient for casual gamers, and why they do not have the same level of involvement with the game industry as core gamers.

Beyond abstraction, individuals' evaluations of comparative fit and prototypicality help to determine whether a person will self-categorize as a member of the group (Turner et al., 1987). In the present case, these two processes may work in tandem to promote distinct casual and core gamer social identities, such that casual gamers differentiate themselves from the core gamer identity and vice versa. More specifically, mainstream notions of the prototypical gamer include the gamer devoting more time than is healthy to video games and failing at maintaining social relationships

and non-gaming activities. On the more positive side, the prototypical gamer is highly skilled and devoted to playing video games to completion (Hawkins, 2013; Hoffswell and Behm-Morawitz, unpublished; Nelson, 2013; Siegal, 2014; Siegel, 2008). These prototypical features of the gamer may deter casual gamers from self-categorizing as a gamer (Shaw, 2013). Although casual gamers play semi-regularly, they play for shorter periods of time and do not typically possess as deep a level of skill or devotion to video games (Hoffswell and Behm-Morawitz, unpublished; Shaw, 2013). Thus, in terms of comparative fit, a casual gamer may not perceive they possess enough similar characteristics to the core gamer causing them to exclude themselves from the gamer social identity. This has consequences, as it is posited that self-categorization influences attitudinal judgments, such that self-categorizing as the ingroup triggers attitudes consistent with what is deemed normative of the ingroup. The devotion to video games that is prototypical of the gamer identity suggests that core gamers would adopt more favorable attitudes toward video games than their casual gamer counterparts who also play games but do not comparatively fit into mainstream notions of the gamer social identity. Non-gamers are the most distant from the core gamer identity and represent a clear outgroup, suggesting that they will hold dissimilar attitudes about video games in comparison to individuals who play games.

The present study utilizes self-categorization theory combined with social identity theory to argue that core gamer, casual gamer, and non-gamer identities should be examined in relation to perceptions and effects of video games. These identities shape how individuals will react to the experimental stimulus and will be utilized to examine differences between each group. The present research seeks to advance understanding of

whether and how casual gamers as well as non-gamers may differ from core gamers in responses to video games. Neys et al. (2014) demonstrated the differences between casual gamers, heavy gamers, and hardcore gamers, but did not examine non-gamers at all. GIS moved the examination of gamers in a new direction by adding casual gamers; however, non-gamers need to be included as well to see the true difference that arises between gamer and non-gamer participants utilized in video game research. Indeed, much of the social scientific research examining video game effects utilizes non-gamer participants. Based on these frameworks, as well as initial evidence from prior research, the following relationships are predicted:

H1: Core gamers will have more positive perceptions of video games than casual gamers and non-gamers, regardless of experimental condition.

H2: Support of video game restrictions and criticisms will be lower among core gamers than casual gamers and non-gamers, regardless of experimental condition.

Social identity and self-categorization theories help explain why gamers uphold certain ideals and attitudes about video games; however, flow theory is another important aspect that supports this dissertation and offers a mechanism that explains the varying levels of gameplay enjoyment as well as level of task-focus experienced by the different gamer identity types. Understanding how social identity parlays into gameplay differences has the potential to advance video game effects research.

Understanding the Gameplay Experience

Flow

Flow theory posits that for every task we undertake, there is an optimum experience that can be achieved for maximum enjoyment (Csikszentmihalyi, 1991).

What this means is that a person can achieve this state and experience high levels of enjoyment as long as they are given a goal that challenges them and they possess the skills to complete that goal (Csikszentmihalyi, 1991). When someone enters a flow state, they become focused only on the task at hand, to the point that they lose sense of time passing. Flow is positively related to enjoying the experience. Extensive research has been carried out on flow theory, and flow has even been revealed in functioning magnetic resonance imaging (fMRI) studies (Klasen, Weber, Kircher, Mathiak, & Mathiak, 2012). Using the fMRI data, Klasen et al. (2012) determined five different factors that contributed to flow while playing video games as “balance between ability and challenge, concentration and focus, direct feedback of action results, clear goals, and control over the situation/activity,” (p. 488-490). These five factors are an important part of the development of the argument for the present research because this paper maintains that they are the reason that gamers may be able to handle exposure to violent content without it significantly altering their base levels of hostility. Three of the five factors are an inherent part of a video game, because all games generally have clear goals, give direct feedback for actions, and allow the player to be the one in control. Ability, challenge, concentration, and focus vary between individual gamers, which contributes to the categorization created for gamer identity (i.e., non-gamer, casual gamer, and core gamer).

Chen and Sun (2016) provided evidence that gamers can self-regulate their flow state when they are given a difficulty choice for a video game, which supports the argument that there is a separation between different types of gamers. Chen and Sun (2016) found that as more skilled players began to experience boredom, they would deliberately increase the difficulty of the game to re-enter a flow state of play.

This theory is integrated into the current dissertation, because it is the basis of the argument that core gamers have a different focus when playing video games than casual and non-gamers. Core gamers would be likely to achieve a flow state while playing games and are able to focus solely on the task of completing the game. When this state is attained, gamers can become absorbed in the task of playing the game and, as a result, become focused on task completion as opposed to being focused on the content of the video game. When a gamer is no longer focused on the content of the game, they may lose focus on the violence that is transpiring during their missions. They are no longer impelled by the need to kill the non-playable characters, but by the need to meet an objective. Killing may be a part of that objective, but the gamer turns off that relationship and orients their thinking around mission completion - to finish the task the game has assigned. Flow allows this dissertation to make the argument that gamers have a task-focused orientation, which provides the basis for hypothesis three.

Flow also offers evidence that core gamers respond to the stimulus of a video game differently than casual gamers and non-gamers, because core gamers are more likely to attain an optimum flow state when exposed to a video game stimulus. As core gamers process video game stimuli differently, it would be natural for the present study to assume there will be a relationship between flow state and video game effects when considering gamer identity. Flow promotes enjoyment, and thus core gamers are more likely than casual and non-gamers to achieve a state of flow and experience greater enjoyment from a video game.

H3: Flow in the game will mediate the relationship between gamer type and enjoyment, regardless of experimental condition.

H4: Gamer type will moderate the relationship between perceived difficulty and enjoyment, such that core gamers who perceive the game to be more difficult will have higher levels of enjoyment than casual and non-gamers, as well as core gamers who perceive the game to be easy.

Going further, attention selection suggests that gamers are robust and handle violent video games differently than casual gamers and non-gamers, as their attention is biased toward selected elements of the gameplay experience. Attention selection also argues that gamers have acute attention to detail, which could also explain why they handle violent video games differently.

Attention Selection

Attention selection has been an area of video game research that has highlighted some of the positive outcomes obtained from regularly playing video games. One such outcome that has been demonstrated is that video game players have much higher visual attention (Vallett, Lamb, & Annetta, 2013). Vallett et al. demonstrated that visual attention was higher among gamers and that action games could be used to train non-gamer individuals to increase their visual attention.

Another study using fMRI demonstrated the visual attention area of the brain was more active among regular violent video game players (Gentile, Swing, Anderson, Rinker, & Thomas, 2016). An important part of the study consisted of researchers also looking at that part of the brain that processes violent content. Gentile et al. (2016) argued that desensitization occurred because the brain was suppressing this area while seasoned violent video game players were engaged with a violent video game. Instead, gamers who were experienced in playing violent video games were cognitively focused,

oriented toward spatial attention, and navigation in the game, rather than focused on the violent content. In contrast, participants less experienced in playing violent video games were more focused on the violent content. Based on this research, as well as flow theory, it is predicted that core gamers, casual gamers, and non-gamers will be affected differently by violent video gameplay.

That gamers are more adaptable than non-gamers when it comes to processing varying media content is a claim of some weight; however, some evidence exists to give credence to it. Matthews (2015) conducted an experiment in which participants played a violent video game and then answered survey items in which they assessed their own skill. Players who rated themselves as highly skilled had significantly lower levels of state hostility and aggression than players who rated themselves as having low skill (Matthews, 2015). Matthews (2015) used construal levels to examine whether highly skilled players would focus more on the violent content of the game or the purpose of the quest that they were given for the experiment. Matthews found that gamers with a high skill level did have higher construal levels, and that skill had a negative correlation with perceptions of violence. Thus, although Matthews did not apply gamer identity to the study, the findings suggest that more invested gamers (those who likely have more skills) were not as impacted by the video game violence.

Matthews (2015) also found that the highly skilled players achieved higher states of flow while playing the game than their low-skilled counterparts. Matthews' (2015) article demonstrates that gamers' involvement with what they are playing nullifies their reaction to violent video game content, and supports the argument that gamers have adapted to process the violent content in a way that does not affect them. Unfortunately,

Matthews did not explore desensitization and the results indicate that it remains a possible explanation as gamers with a higher skill level spend more time playing games. The hypotheses proposed also examine whether gamers have lower levels of hostility and empathy to ascertain whether gamers have higher levels of resting hostility and lower levels of base empathy.

H5: The level of state hostility will change from pre- to post-gameplay, dependent on gamer identity and experimental condition, such that hostility is expected to increase significantly for non- and casual gamers as well as participants in the high violence condition but not core gamers nor participants in the low violence condition.

To examine whether core gamers may be desensitized to violence, additional research questions are proposed to explore group differences in hostility levels pre- and post-gameplay.

RQ1a: Will state hostility in the pre-test differ significantly based on gamer identity?

RQ1b: Will state hostility in the post-test differ significantly based on gamer identity?

Furthering the discussion on desensitization, Anderson et al. (2010) carried out a meta-analytic review of video game effects research related to violent games. One of the areas specifically examined was empathy and its relationship to desensitization amongst gamers (Anderson et al., 2010). It was found that high-state hostility was also an indicator of lower empathy, which contributes to the desensitization argument. The results from this study lead to the next set of hypotheses and research questions.

H6: Empathy will change from pre- to post-gameplay, dependent on gamer identity and experimental condition, such that empathy is expected to decrease significantly for non- and casual gamers as well as participants in the high violence condition, but not for core gamers nor participants in the low violence condition.

RQ2a: Will empathy in the pre-test differ significantly based on gamer identity?

RQ2b: Will empathy post-gameplay differ significantly based on gamer identity?

These hypotheses and research questions will help demonstrate that examining group differences between casual gamers and core gamers works experimentally, and will provide the first instance of casual gamers being utilized in experimental research rather than survey research. Aside from this evidence, a recent study examined what provided the basis for attitudes toward video games.

H7: Core gamers' gameplay reflections will be (a) significantly more task-focused and (b) significantly less violence-focused than those of casual gamers and non-gamers.

Besides increasing specificity of gamer identity as a construct in video game effects research, an additional goal of this research approach is to achieve a greater understanding of the gamer community and lessen the antagonistic relationship between gamers and researchers. Gamers perceive researchers as trying to destroy video games and change them for the worse; however, they fail to understand that many researchers in game studies are gamers themselves, albeit part-time because of the work and dedication required by academia. The present research may help to bridge this gap by demonstrating that researchers should consider how invested gamers are in responding to

the stimuli used for experiments. It is to be hoped that the more nuanced approach of seeking out specific differences between gamers and non-gamers can lead to more cooperation when gamers are asked to take part in future research: the gamers will know that researchers are beginning to understand that their specific social identity alters their response to video game stimuli.

Chapter 3: Method

A laboratory experiment was conducted to examine the hypotheses and research questions. This experiment was a 3(gamer type) X 2(condition) cross-sectional design. Gamer type was analyzed as three groups: non-gamer, casual gamer, and gamer. The results from the GBA scale provide evidence that this was an acceptable course of action because the results of the first survey provided evidence that core and hardcore gamers share the same opinions and attitudes; there is, therefore, no need to separate the groups (Hoffswell & Behm-Morawitz, unpublished). The experiment utilized two conditions, namely a high-violence and a low-violence condition. A pilot study was conducted to determine whether utilizing the video game *Grand Theft Auto IV* as the stimulus for both conditions would be viable.

Pilot Study

A pilot study was conducted to pre-test the stimulus and determine whether the violent and low-violence conditions differed significantly in violent content. Fifty-two undergraduate students from a large mid-western university were recruited from public speaking courses. The *Grand Theft Auto* series was utilized to provide the game stimulus for this project because of its popularity and the fact the series has sold over 250 million copies as it was first marketed in 1997 (Cragg, 2016). *Grand Theft Auto IV* was used as the stimulus for the pilot study, chosen because it is a best-selling video game that is now nine years old. It was preferred to *Grand Theft Auto V* because there are no taxi cab missions in *Grand Theft Auto V*, and it was deemed necessary to ensure that all participants who enter the lab would play a game that they had not encountered for some time. To manipulate violence in *Grand Theft Auto IV*, participants were placed in one of

two conditions: in the first condition (i.e., high-violence condition) participants were given access to weapon and armor cheat codes and were then instructed to cause chaos. In the second condition (i.e., low-violence condition), participants completed a taxi cab mission and were instructed to drive as safely as they possibly could, which meant avoiding bumping other cars and following the rules of the road. They were also warned that police non-playable characters were very sensitive, and to avoid car-to-car contact with police vehicles at all costs.

Upon entering the research lab, participants completed a survey that gained consent and measured gamer type as well as the initial level of state hostility of the participants. The state hostility measurement was taken to establish a baseline from which to compare the level of state hostility for the different gamer types described in the present study. After finishing the survey, participants played *Grand Theft Auto IV* in a low-violence or high-violence fashion. The use of the same game for both conditions increases the internal validity of the study and minimizes differences across conditions, other than the manipulated level of violence.

Participants in the low-violence condition were tasked with driving a taxi cab, picking up a passenger, and delivering them to their destination. Participants were instructed to complete this task by following the rules of the road and avoiding accidents at all costs. Participants were given ten minutes to play the game in both conditions and it was not important whether they completed the taxi cab mission. Participants in the high violence condition had a weapons cheat code and body armor cheat code entered for their character. Participants were instructed to create as much chaos as possible in their ten-minute time. Ten minutes of playing a violent video game was revealed to increase

aggression in a meta-analysis examining multiple video game studies from the 1990s (Sherry, 2001). Participants had access to the cheat codes so they could be re-entered if their character was killed or arrested by the police.

Following gameplay, participants filled out a brief survey, which asked them to indicate the level of violence of the game. Specifically, participants indicated how violent the game was on a scale from (1) not at all violent to (5) extremely violent.

An independent samples t-test found that the high-violence condition ($M=4.56$, $SD=.51$) was significantly more violent than the taxi cab condition ($M=2.64$, $SD=1.29$); $t(52)=7.16$, $p<.001$. That result demonstrates that the stimulus will be reliable and can be used to create a “high-violent” and “low-violent” condition.

Aside from testing the stimulus, the pilot study used the preliminary survey to examine whether there were any significant differences when using Anderson and Carnagey's (2009) state hostility scale. The state hostility scale examines four different factors at the time of administration for participants: feeling unsociable, feeling mean, aggravation, and lack of positive feelings (Anderson, 2012). A one-way ANOVA was conducted to determine the group differences for hostility overall, as well as the four portions of the state hostility scale, to ensure that there were no differences between gamers and non-gamers. The difference between gamers and non-gamers for state hostility overall failed to reject the null [$F(3,51)=1.02$, $p=0.39$], as did meanness [$F(3,51)=1.03$, $p=0.39$], unsociableness [$F(3,51)=2.81$, $p=.05$], aggravation [$F(3,51)=1.87$, $p=0.15$], and lack of positivity [$F(3,51)=0.501$, $p=0.68$]. The pilot demonstrates that, before any gameplay, there is no difference in state hostility between gamers and non-gamers, which provides some initial evidence for the robustness and the

capacity of gamers to be less affected by violent content in video games, in comparison to non-gamers.

Experiment

The experimental stimulus utilized was *Grand Theft Auto IV* for the XBOX 360. This game was utilized in the pilot study, and it was determined that there was a significant difference for perceived violence for the high-violence condition and the driving condition. There was a change in the violent and non-violent manipulation between the pilot and the experiment, which is detailed below in the description for each condition.

Conditions

Participants were randomly assigned to either the high-violence or low-violence condition.

High-violence manipulation: In this condition, participants were given a narrative (found in Appendix B) before gameplay that gave general background information for the video game character. Participants in this condition were asked to sit at a game station after they completed the pre-test survey. The participants placed in this condition were given five minutes to practice the game controls and to acquire basic driving and shooting skills in the game. On completion of the five minutes of practice, participants were told what their task would be for the experiment. Participants were given 25 minutes to complete missions for the non-playable character Little Jacob. Each mission consisted of a sequence of events during which the main character had to drive Little Jacob around to rival drug dealers' locations and assist him in killing his rivals. In the first part of the first mission, players could choose to shoot or run over the rival drug

dealers, while the second part of the first mission taught players how to take cover while shooting at rival drug dealers in an apartment. If a participant completed this first mission, they were then instructed to go to Little Jacob for a second mission. The second mission involved the same premise as the first and required the player to help Little Jacob eliminate rival drug dealers. After 25 minutes had passed, participants were asked to pause the game and take the post-test survey (Appendix B).

Low-violence manipulation: In this condition, participants were given a narrative (found in Appendix B) before gameplay that explained a little of the background to their character. As with the high-violence condition, participants were given five minutes to practice before starting the missions for the experiment. This condition involves the participants completing taxi missions, and all participants are explicitly told verbally, and in the mission instructions, to not exit the vehicle unless told to do so for the mission; nor were they to commit any violent acts that would result in police attention or harm to a non-playable character. Participants in both conditions were monitored, but participants in the low-violence condition who intentionally committed acts of violence would be asked to stop playing and would be thanked for their time, but not given an opportunity to complete the post-test survey.

Recruitment and Procedure

Two hundred forty-one undergraduate college students participated in the study. One participant had to be dropped because they decided they did not want to participate after viewing the experimental stimulus, and two participants had to be dropped from the low-violence condition for failing to follow directions. Four more participants were dropped because they did not properly fill out the post-test survey. This resulted in 234

total participants, with the high-violence condition having 119 (51%) participants, and the less high-violence condition having 115 (49%) participants. One hundred twelve (47.9%) participants identified as male and 122 (52.1%) participants identified as female. Of the participants in the high-violence condition, 63 (53%) could successfully complete at least one mission, and 82 (71%) participants in the less high-violence condition could successfully complete at least one mission. The average age of participants was 20 (28%). One hundred ninety-four (83%) participants identified as White, 22 (9%) identified as African American, 8 (3%) identified as Asian, 2 (1%) identified as Native American, 2 (1%) identified as Middle Eastern, and 6 (3%) identified as another undisclosed race. One hundred three (44%) participants chose consoles as their favorite way to play video games, 22 (9%) participants chose laptops/PCs as their favorite way to play video games, 42 (18%) participants chose cellphones/tablets as their favorite way to play video games, and 67 (29%) participants said they did not play video games. The average amount of time spent playing video games was roughly two and a half hours ($SD = 4.5$). When participants entered the lab, they were directed to a computer and took the pre-test survey (Appendix A). The pre-test survey included the consent form to participate in the project. At the end of the survey participants were given a randomly generated number that they had to enter at the beginning of the post-test. This ensured anonymity and allowed the pre-test and post-test data to be linked for analysis. All participants were randomly assigned to one of the two conditions listed above. After completing their experimental condition, participants took a post-test survey.

Independent Variables

Condition: The violent nature of the gameplay was manipulated. Participants were placed in a high-violence condition or driving/low-violence condition.

Gamer Type: Gamer type was a categorical variable created by combining the standardized items from the GBA scale, gamer identity scale, and gamer type scale. The information for the three scales that made up the gamer type scale is listed below. The standardized scores were utilized because each scale had a different level. Forty-eight items were combined and their scores averaged. Prior to examining hypotheses, a correlational analysis was carried out to examine how the GBA scale interacted with the gamer identity scale and gamer bias scale. After eliminating one item from the gamer identity scale and two items from the gamer bias scale, a Cronbach alpha of .963 was achieved, revealing a new 48-item gamer bias scale. These 48 items were standardized because each scale utilized a different level of measurement (the GBA has a 5-point scale while the scales for gamer identity and gamer in-group bias utilize 7-point scales), after which they were combined into a composite score. This score was divided into thirds and utilized to categorize participants into a non-gamer, casual gamer, or gamer category for ANOVA statistical tests. The composite score was used for statistical tests that utilized continuous independent variables. The transformed scale had a high reliability: Cronbach's alpha = .963 ($M = .0105$, $SD = .6016$). The reason that the three different measures were combined was the high correlations amongst them. The correlation between GBA and the gamer identity measures was $r(232) = .6$, $p < .001$; the correlation between GBA and gamer ingroup bias was $r(232) = .577$, $p < .001$; and the correlation between gamer identity and gamer ingroup bias was $r(232) = .697$, $p < .001$. These high

correlations provided the justification for combining the standardized scores of the three different measures. This average was split into three equal groups with the lowest group becoming non-gamers, the middle group becoming casual gamers, and the highest group becoming gamers. This was done to complete repeated measures ANOVA testing for hypothesis one.

Gamer attitudes and behaviors: This was measured using the GBA scale created by Hoffswell and Behm-Morawitz (unpublished). The scale had high reliability and consisted of 35 items: Cronbach's alpha = .954 ($M = 2.899$, $SD = .8577$). This scale utilized a 1 to 5 Likert scale ranging from disagree to agree and includes items such as, "I spend my free time playing video games," "I find myself replaying one game over and over," "I enjoy friendly competition," "I buy games when they are first released", and "I like to collect trophies/achievements".

Gamer identity: A social identity scale consisting of 7 items which ranged from 1 to 7 from strongly disagree to strongly agree was adapted from Greene (1999) and utilized items like "When someone criticizes gamers I take it personally" and "I'm very interested in what others think about gamers." The scale had a high reliability: Cronbach's alpha = .876 ($M = 2.712$, $SD = 1.523$)

Gamer Bias: An in-group bias scale consisting of 9 items that utilized a 7 point Likert scale from strongly disagree to strongly agree was adapted from Loersch and Arbuckle (2013) and included items like "How important is being a gamer to you?" and "To what extent do you dislike people who aren't gamers?" The scale had a high reliability: Cronbach's alpha = .825 ($M = 1.872$, $SD = .8789$)

Mediating Variables

Flow: Flow was measured utilizing the 31-item adapted egame flow scale (Fu, Su, & Yu, 2009). The scale can be found in Appendix C and utilizes a 5-point Likert scale from “strongly disagree” to “strongly agree.” An example item is: “I become unaware of my surroundings,” (Fu et al., 2009). The scale had a high reliability Cronbach’s alpha: .915 ($M = 3.352$, $SD = .6789$)

Perceived difficulty: Perceived difficulty is how challenging a participant perceives the game to be. The measurement used was created for a previous study and verified via a confirmatory factor analysis (Hoffswell & Choi, unpublished). The scale consists of seven items. The scale can be found in Appendix C and utilized a 5-point Likert scale from “strongly disagree” to “strongly agree.” An example item is: “The game was impossible to play” (Hoffswell & Choi, unpublished). The scale had a high reliability Cronbach’s alpha: .847 ($M = 2.984$, $SD = 1.02$)

Control Variables

Need for cognition: The short form need for cognition scale from Cacioppo, Petty, and Chuan Feng Kao (1984) was utilized as a control measure and consists of eighteen items. The scale had a high reliability: ($M = 5.515$, $SD = 1.001$). This scale included items like “I would prefer complex to simple problems,” and reverse coded items like “I only think as hard as I have to.”

Gender: The gender of the participant was utilized as a control variable.

Dependent Variables

Empathy: The Basic Empathy Scale (BES) will be utilized in the pre-test and administered again in the post-test (Carré, Stefaniak, D’Ambrosio, Bensalah, & Besche-

Richard, 2013). Lack of empathy and decrease of empathy have been referenced in several video game studies mentioned above and used to determine whether video game players have been desensitized. This scale consists of 20 items. The scale can be found in Appendix A and utilizes a 5-point Likert scale from “strongly disagree” to “strongly agree.” An example item is: “My friends’ emotions don’t affect me much” (Carré et al., 2013). This will be used to explore gamers’ prosocial behaviors. The scale had a high reliability for the pre-test and post-test Cronbach’s alpha: .846, .869 (Pre-test: $M = 5.115$, $SD = .6438$; Post-test $M = 5.107$, $SD = .6901$)

State hostility: State hostility was measured by using the 35-item state-hostility scale that was recently refined (Anderson & Carnagey, 2009). The scale measures aggravation, unsociableness, meanness, and lack of positive feelings (Anderson & Carnagey, 2009). As in the pilot, a group comparison will be made for state hostility overall, and the individual factors will then be examined. The scale can be found in Appendix A and utilizes a 5-point Likert scale from “strongly disagree” to “strongly agree”. An example item is: “I feel furious” (Anderson & Carnagey, 2009). The scale had a high reliability for the pre-test and post-test Cronbach’s alpha: .909, .954 (Pre-test: $M = 1.721$, $SD = .4436$; Post-test $M = 1.986$, $SD = .6857$)

Enjoyment: This measures the attitude of gamers and non-gamers toward fun while playing video games, and was utilized pre-test and post-test to measure whether this attitude fluctuates after being exposed to a video game stimulus. Fun is a combination of attitudes toward gaming and enjoyment taken from Shafer (2013) and consists of 12 items. The scale can be found in Appendix A and utilized a 5-point Likert scale from “strongly disagree” to “strongly agree”. An example item is: “Video games

are interesting” (Shafer, 2013). The scale had a high reliability Cronbach’s alpha: .931 ($M = 3.47, SD = .9961$)

Gameplay experience reflections: After playing in either condition, participants were asked to write a brief reflection about what they noticed while playing the video game stimulus. To utilize the reflections of the participants, a content analysis approach was taken. This content analysis utilized a deductive approach based on the predication made in hypothesis seven. Specifically, it was expected that core gamers would focus on the mission more so than casual and non-gamers. Each response, regardless of length, became a single unit of analysis. Each unit of analysis was coded as violent focused and task focused. Codes were dichotomous, such that 0 was equal to no and 1 was equal to yes. If a response talked about mission completion, completing the task, or performing the objective, it was coded as having a task focus. If a response talked about how violent the video game was, how the participant killed drug dealers or pedestrians, how much blood was displayed, or shooting at pedestrians, it was coded as violent. This coding was not mutually exclusive, meaning that a response could be coded as both violent and task-focused if the participant wrote about their concern for completing the mission they were assigned, coupled with writing about killing or mentioning the blatant violence within the game. To examine the differences in participant focus, their responses were coded by the mention of violent activities in the game, as well as of the tasks that needed to be completed.

The results of the experiment are presented in the next chapter.

Chapter 4: Results

Analysis of the data began with an empirically based approach to determine whether need for cognition and gender would need to be included as control variables. Appendix D contains Table 4 which is the correlation table for the control variables, all the dependent variables, and the mediator of flow. The results from Table 4 reveal that gender needs to be included as a control variable for all dependent variables as well as the mediator flow. Need for cognition only need to be included as a control variable for enjoyment, as it was not significantly correlated with any other variable. Time spent playing video games also served as a control for any hypothesis where the overall gamer type score was used. To accurately utilize the PROCESS (Hayes, 2013) macro for hypotheses 3 and 4, a regression ($F(1, 232) = 137.01, p < .001, r^2 = .371$) was run utilizing the standardized score for hours spent playing games to predict the standardized gamer type score. The standardized residual from this equation was used in hypotheses 3 and 4 to control for time spent playing video games. Beyond this, the results of the experiment are presented.

Hypothesis 1

H1 predicted core gamers will have more positive perceptions of video games than casual gamers and non-gamers, regardless of experimental condition.

A one-way ANCOVA was conducted to test this hypothesis, while controlling for gender, by having overall gamer behaviors and attitudes from the post-test used as the dependent variable and the three gamer categories serving as the independent variables. There was a significant difference in positive perceptions of video games, $F(2, 230) = 324.5, p < .001, \eta^2 = .436$. A post hoc analysis using Bonferroni adjustment was conducted to determine the difference between the individual groups. Non-gamers ($M = 1.910$) had

significantly lower positive perceptions of video games than casual gamers and core gamers $p < .001$. Casual gamers ($M = 2.947$) had significantly lower positive perceptions of video games than core gamers and significantly higher perceptions of video games than non-gamers $p < .001$. Core gamers ($M = 3.828$) had significantly higher positive perceptions of video games than non-gamers and casual gamers $p < .001$. Hypothesis 1 was supported and furthers the argument that non-gamers, casual gamers, and core gamers have distinct and vastly different reactions to video game stimuli.

Hypothesis 2

H2 predicted support of video game restrictions and criticisms will be lower for core gamers than for casual and non-gamers, regardless of condition.

To test this hypothesis, an ANCOVA was conducted, while controlling for gender, to determine whether there was a significant difference in opinion toward game restrictions and criticisms between core gamers, casual gamers, and non-gamers. The composite variable that measured opinions of video game regulation and criticisms failed Levene's test for homogeneity of variances so a logarithmic transformation was done on support of video game restrictions and criticisms to pass Levene's test. After this transformation, results demonstrated a significant difference between gamer types [Non-gamer $M = .4868$, $SD = .1443$, Casual Gamer $M = .3324$, $SD = .1837$, core gamer $M = .1440$, $SD = .1618$; $F(2,230) = 39.03$, $p < .001$, $\eta^2 = .386$]. A post hoc analysis using Bonferroni was conducted to determine the difference between the individual groups. Non-gamers had significantly more support for video game regulation and criticism than casual gamers and core gamers $p < .001$. Casual gamers had significantly more support for video game regulation and criticism than core gamers, and significantly less support

than non-gamers $p < .001$. Core gamers had significantly less support for video game regulation and criticism than casual gamers and core gamers $p < .001$. Hypothesis 2 was supported.

Hypothesis 3

H3 predicted flow in the game will mediate the relationship between gamer type and enjoyment, regardless of experimental condition.

Figure 1

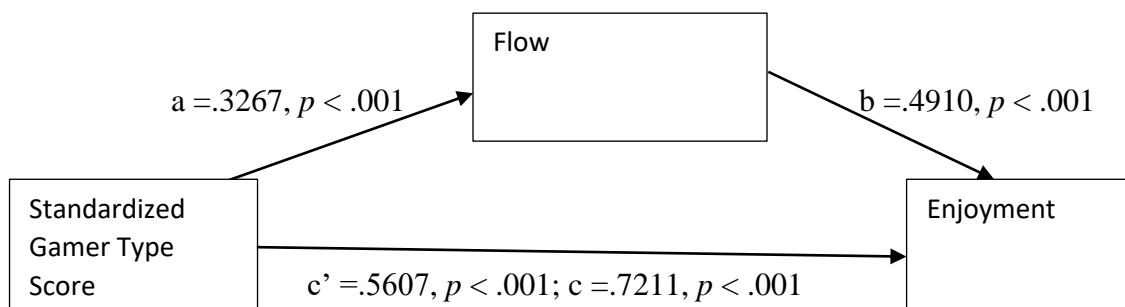


Figure 2 above uses Model 4 in Andrew Hayes PROCESS in SPSS (Hayes, 2013). The indirect effect passed the confidence interval test and did not cross over 0 (95% confidence interval with 5000 bootstraps = .1085 to .2266). The indirect effect of flow on enjoyment is significant. Hypothesis 3 was supported. This hypothesis supports the previous literature that flow is an important process when it comes to enjoyment while playing video games. Hypothesis 4 also demonstrates the positive and strong relationship between gamer type and flow.

Hypothesis 4

H4 predicted standardized gamer bias score will moderate the relationship between difficulty and enjoyment, such that core gamers who perceive the game to be more

difficult will have higher levels of enjoyment than casual and non-gamers, as well as core gamers who perceive the game to be easy.

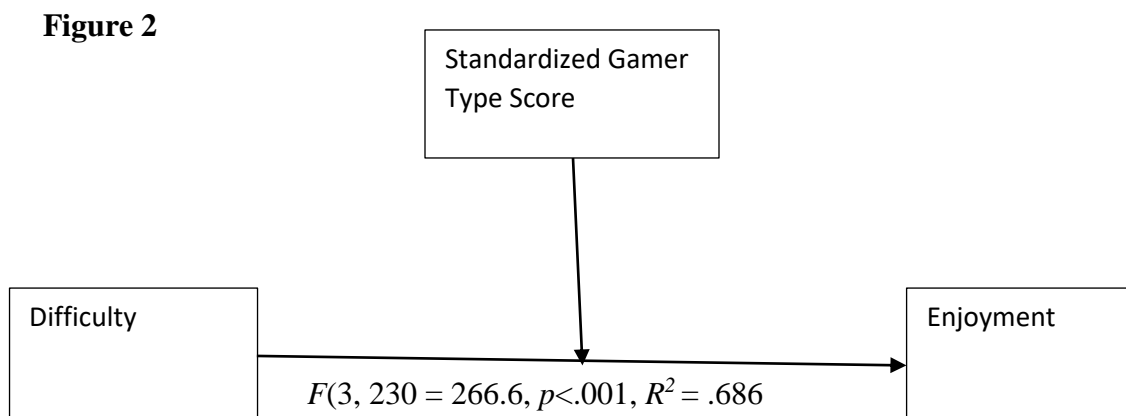


Figure 1 above uses Model 1 in Andrew Hayes PROCESS in SPSS (Hayes, 2013).

Overall, the model was significant but to examine the hypothesis, the conditional effect of gamer type on the relationship between difficulty and enjoyment needed to be examined. Table 3 below provides the results generated by Hayes PROCESS macro for SPSS (Hayes, 2013).

Table 3

Conditional effects of difficulty on enjoyment at different gamer types

Gamer Type	β	<i>SE</i>	<i>t</i>	LLCI	ULCI
Non-gamer	-.5941	.1051	-5.655*	-.8012	-.3871
Casual gamer	-.3680	.0532	-6.923*	-.4727	-.2633
Core gamer	-.1418	.0514	-2.760	-.2431	.0406

*= $p < .001$

Table 3 demonstrates that for all gamer types difficulty has a negative relationship with enjoyment. This means that hypothesis 4 was not supported. However, as gamer type score rises the negative impact that difficulty has on enjoyment decreases, which is an interesting result. Although the hypothesis did not obtain evidence, an interesting result emerged nevertheless.

Hypothesis 5

H5 predicted the level of state hostility would change from pre- to post-gameplay, dependent on gamer identity and experimental condition, such that hostility was expected to increase significantly for non- and casual gamers as well as participants in the high violence condition but not core gamers nor participants in the low violence condition

To test this hypothesis, a mixed-design ANCOVA was conducted. Results revealed that there was no significant interaction between condition and gamer type within subjects $F(2, 227) = .817, p = .443$, and that none of the between-subjects' effects were significant either. However, condition did influence state hostility between the pre- and post-tests $F(1, 227) = 4.40, p < .05, \eta^2 = .091$, such that the high-violence condition produced larger increases in state hostility. Gamer type also influenced state hostility between the pre- and post-tests $F(2, 227) = 4.998, p < .005, \eta^2 = .209$, but no between-subjects effects were found $F(2, 227) = .824, p = .440$. Although there was a significant increase in state hostility after exposure to the video game, a Bonferroni posthoc test on the repeated measures ANOVA revealed there was no significant difference in the amount by which hostility increased after games between the groups, which means there was no significant difference in the increases. A Bonferroni posthoc test on the repeated measures ANOVA revealed that only non-gamers (M difference = .574, $SE = .075, p <$

.001) and casual gamers (M difference = .227, $SE = .074$ $p < .01$) experienced a significant increase after playing either video game, while gamers (M difference = -.004, $SE = .075$ $p = .956$) experienced no change in state hostility after playing either game condition. This hypothesis is partially supported as the results demonstrate that gamers were unaffected by the experimental stimulus, no matter which condition they were in for the experiment. The results, however, demonstrated that the high-violence condition failed to produce significantly more hostile feelings amongst the participants placed in that condition.

Research Question 1

RQ1a explored which gamer identity group would have the largest state hostility before being exposed to the experimental stimulus. First a one-way ANCOVA was conducted, but this revealed that gender was not a significant factor in the model, $F(1, 230) = .141, p = .708$. This led to utilizing a one-way ANOVA which was conducted to examine this research question by having overall state hostility from the pre-test used as the dependent variable and the three gamer categories serving as the independent variables. Because of the failure of Levene's test, Welch's ANOVA was utilized and demonstrated a significant difference between the groups, $F(2, 144.4) = 8.353, p < .001, \eta^2 = .0658$ with core gamers ($M = 1.873, SD = .5154$) having the highest average state hostility, compared to non-gamers ($M = 1.601, SD = .2867$) and casual gamers ($M = 1.688, SD = .4548$).

RQ1b explored which gamer identity group would have the largest state hostility post exposure to the experimental stimulus. First a one-way ANCOVA was conducted, but this revealed that gender was not a significant factor in the model, $F(1, 230) = 1.694, p =$

.194. This led to utilizing a one-way ANOVA which was conducted to examine this research by having overall state hostility from the post-test used as the dependent variable and the three gamer categories serving as the independent variables. As a result of the failure of Levene's test, Welch's ANOVA was utilized and found that there was a significant difference between the groups, $F(2, 150.5) = 4.307, p < .05, \eta^2 = .0383$ with non-gamers ($M = 2.175, SD = .7572$) having the highest average state hostility compared to core gamers ($M = 1.87, SD = .5464$) and casual gamers ($M = 1.916, SD = .7053$)

Hypothesis 6

H6 predicted empathy will change from pre- to post-gameplay, dependent on gamer identity and experimental condition, such that empathy is expected to decrease significantly for non- and casual gamers as well as participants in the high violence condition, but not for core gamers nor participants in the low violence condition.

To test this hypothesis, a mixed-design ANCOVA was conducted. Results revealed there was not a significant interaction between condition and gamer type between subjects $F(2, 227) = 2.629, p = .074, \eta^2 = .175$, and the within-subject effects were not significant. $F(2, 227) = 1.781, p = .171, \eta^2 = .509$. This hypothesis was not supported, but it did reveal that empathy was approaching significant difference between the three different gamer types. These differences are explored further in the following research questions.

Research Question 2

RQ2a explored which gamer identity group would have the most empathy before being exposed to the experimental stimulus. A one-way ANCOVA was conducted to examine this research question by having empathy from the pre-test used as the

dependent variable and the three gamer categories serving as the independent variables. The ANCOVA passed Levene's test, but was not significant when controlling for gender $F(2, 230) = 1.955, p = .144$, with core gamers ($M = 4.835, SD = .597$) having the lowest average empathy, compared to non-gamers ($M = 5.3442, SD = .626$) and casual gamers ($M = 5.17, SD = .610$).

RQ2b explored which gamer identity group would have the most empathy before being exposed to the experimental stimulus. A one-way ANCOVA was conducted to examine this research question by having empathy from the post-test used as the dependent variable and the three gamer categories serving as the independent variables. The ANCOVA passed Levene's test, but was not significant when controlling for gender $F(2, 230) = .763, p = .468$, with gamers ($M = 4.8526, SD = .684$) maintaining the lowest average empathy, compared to non-gamers ($M = 5.3766, SD = .628$) and casual gamers ($M = 5.094, SD = .6663$). The results from hypothesis 6 and the coinciding research questions reveal that core gamers have lower empathy, but also that a violent video game stimulus had almost no impact on any gamer type. This result is interesting because it provides evidence that empathy might be an ability that is unaffected by violent video game stimuli. However, this does not offer any explanation as to why core gamers have significantly lower empathy than non-gamers.

Hypothesis 7

H7 predicted that core gamers' gameplay reflections will be (a) significantly more task-focused and (b) significantly less violence-focused than those of casual gamers and non-gamers, regardless of condition.

Chi-square testing revealed that non-gamers ($N=50$) focused on violence in the game significantly more than casual gamers ($N=28$) and core gamers ($N=27$) $\chi^2(2, N=234) = 18.686, p < .01$, Cramers $V = .283$. However, Chi-square testing also revealed that there were no differences in task focus amongst participants who were non-gamers ($N=39$), casual gamers ($N=47$), and core gamers ($N=50$) $\chi^2(2, N=234) = 2.974, p = .226$, Cramers $V = .113$. These results are interesting because they indicate that both core gamers and casual gamers do not particularly pay attention to violent content while playing a violent video game. This hypothesis is marginally supported because the only significant difference that arose was the focus on violence for non-gamers, as compared to that of casual gamers and core gamers; however, no differences in violence focus emerged between casual gamers and core gamers, and no differences emerged for task orientation between all three gamer types. Differences failing to emerge in task orientation could be partly because of inadvertent priming that occurred when explaining to participants explicitly that their task was to complete missions for the experiment.

Chapter 5: Discussion, Limitations, and Conclusion

The primary purpose of this dissertation was to demonstrate that the unique identity of the gamer provides a framework from which to examine how a person who is a gamer has different reactions to stimulus than those of non-gamers and casual gamers. The secondary purpose of this dissertation was to demonstrate that casual gamers are an identity group that has emerged within the core gamer identity group and that this identity reacts differently to gaming stimulus from core gamers and non-gamers. The tertiary purpose of this dissertation was to argue that specific identity groups formed around a medium (i.e. video games, in the present study) will have significantly different reactions when exposed to a stimulus in that medium in an experimental setting, in comparison to groups who do not as strongly identify with the medium. Finally, this dissertation furthers the social identity approach by utilizing social identity theory in conjunction with self-categorization theory as well as further confirms the continual use of flow theory in video game research. The results obtained from this experiment can be at least partly explained by social identity theory, self-categorization theory, and flow theory. These three theories provided the foundation for this experiment. Social identity theory provided justification for examining group differences between gamers and non-gamers. Due to its malleability and the evidence provided that social identity is often selected, social identity theory works well to examine gamer identity. The self-categorization theory further expanded the group difference examinations in this dissertation by providing justification for testing differences between non-gamers, casual gamers, and core gamers. Flow theory provided a mechanism to examine group differences beyond reaction to the experimental stimuli with the idea that flow mediates the relationship

between gamer type and enjoyment. Each hypothesis and research question has revealed something interesting about the experiment. An interpretation of those results follows.

Each hypothesis contributes to the various purposes of this dissertation, and as each hypothesis is examined it will reveal how the results support the purposes of this dissertation. Hypothesis one confirmed that gamers have a positive bias toward video games. This is in line with what social identity theory hypothesizes about in-groups, as Neys et al. (2014) argued. Hypothesis one confirms that non-gamers, casual gamers, and core gamers are three distinct groups that have significantly different biases on video games. Without the presence of these biases, significant differences would not be present, particularly between casual gamers and non-gamers. This hypothesis provides evidence that it is necessary to couple self-categorization theory with social identity theory to examine the differences within the gamer groups. Hypothesis one's results provide evidence that supports both social identity theory and self-categorization theory. Social identity theory provides a clear explanation because both casual gamers and core gamers (the ingroup) have significantly more positive attitudes toward video games than non-gamers (the outgroup). Then self-categorization theory contributes because casual gamers do have positive attitudes (interpersonal abstraction), but not nearly as much as core gamers (intergroup abstraction). This is also where this experiment departs from the findings of Neys et al. (2014) because GIS is based on combining social identity theory with self-determination theory. The reason self-determination theory is not applicable here is that this experiment was not seeking to measure gamers' overall motivations for continuing to play video games like the GIS. The current experiment chose self-categorization theory over self-determination because the former provides a better base

argument for deliberately splitting the large ingroup of gamers into smaller, more individual, groups.

Delving further into the differences between the three gamer types, hypothesis two demonstrated that core gamers were not supportive of video game criticism and regulations. This hypothesis showed the opposite trend of video game enjoyment because as gamer type score increased, the support for criticism and regulations decreased. This negative relationship provides more evidence that core gamers have a more positive outlook on video games than casual gamers and non-gamers. Hypothesis two also supports the social identity approach because the results are a mirror of hypothesis one. Todd (2015) explored how gamers resist change and are critical of any attacks on the medium of video games. Hypothesis two supports the observations that were made in that article because core gamers were so much less supportive of any criticism toward video games. Abstraction levels are once again clearly demonstrated because the casual gamers are much more supportive of criticisms and regulation of video games. In this case, the interpersonal abstraction that casual gamers utilize lines them up more closely with non-gamers. This could be because casual gamers do not think that casual games would be effected, or it could be because casual gamers do not have interest in the same video games as the core gamers. Moving beyond the social identity approach, hypothesis three explores flow theory.

Flow has been utilized in previous video game cross sectional studies to examine the impact that flow state has on video game players. Hypothesis three demonstrated that as gamer identity increases, so too does flow which, in turn, increases enjoyment. Flow has been a tool to examine enjoyment in video game literature prior to this study (Chen &

Sun, 2016; Fu et al., 2009; Klasen et al., 2012), and the current study adds to that literature by continuing to demonstrate how powerful the effect of flow is on enjoyment, even when having to control for gender and need for cognition. This was the first-time flow was utilized in exploring the gamer type and its relationship to enjoyment. The model demonstrates that as gamer type score flow increases so does enjoyment. All the previous literature mentioned also obtained evidence to support the belief that optimal flow is important to enjoyment for core gamers. As this hypothesis was applied to all the groups, it was interesting to note that in regard to enjoyment, the three gamer categories behave in a consistent fashion. Enjoyment and flow are lowest for non-gamers, enjoyment and flow hover around the middle for casual gamers, and, finally, both these measures are consistently the highest for core gamers. This consistency demonstrates the utility of separating gamers into the three different types discussed in this dissertation. Each hypothesis further demonstrates the consistency in which the gamer identity groups behave.

Hypothesis four demonstrated that gamer type score moderates the relationship between perceived difficulty and enjoyment; however, the relationship between difficulty and enjoyment is negative no matter what type of gamer is playing. This result did not support the hypothesis, but the results did show an interesting trend as gamer type score increased. As the score went from non-gamer to casual gamer to core gamer, the slope decreased in intensity. For core gamers, the difficulty still had a negative relationship with enjoyment, but it was much smaller than the negative relationships for non-gamers and casual gamers. Even though this hypothesis was not supported, the results support the larger argument that core gamers process and react to video game stimuli differently

to non-gamers and casual gamers. This hypothesis connects to Matthews et al. (2015) because a possible explanation for the decrease in slope could be due to an increase in player skill level. Even though this study did not test player skill level explicitly, it could possibly be explored through further analysis of participant responses, particularly if non-gamers chose to focus on lamenting their lack of skill in their responses. Beyond that, these results demonstrate that core gamers have muted reactions after a video game-playing session.

Hypothesis five explored the argument that people who fall into the social identity of the gamer will react differently when presented with video game stimulus. Hypothesis five was supported, which provides evidence for the argument that the social identity of the core gamer reacts differently to gaming media. This result also contributes to the larger argument that has been made in prior research, namely that active consumers of video games are less likely to be influenced by their content (e.g., Przybylski & Weinstein, 2016). However, this experiment only focused on violent video game content, so the evidence provided only contributes to arguments about violent video games. Even though it only focuses on violent content, these results are still important as they give clear evidence that gamers experience almost no change in state hostility after playing a violent video game. The experimental manipulation may have failed because there were no between-group differences for state hostility based on the experimental conditions in which participants were placed; however, *Grand Theft Auto IV* is a violent video game so it is safe to claim that the evidence suggests that gamers have no reaction to violent content in regard to their hostility levels. The research questions do show that gamers have the highest base levels of base hostility, but the shift for non-gamers after playing a

violent video game is so high that their state hostility becomes significantly larger than that of gamers. The same can be said for casual gamers, who also experienced a significant increase. These results demonstrate that violent video games can have a negative effect on people by increasing their hostility levels, which is in line with previous literature that has argued that violent video games can lead to hostility increases (e.g., Anderson & Dill, 2000; Anderson and& Murphy, 2003; Anderson et al., 2008, Ballard & Lineberger, 1999); however, the results from hypothesis one have provided evidence that indicates that drastic increases in hostility are only experienced by non-gamers and casual gamers. These results complicate the evidence presented in previous literature because of the lack of change in core gamers. Previous literature becomes complicated because it raises the question of whether gamers were examined specifically, or whether the previous experiments relied on the simple method of the number of hours spent per week playing video games. Hypothesis six Had some diverging results/

Hypothesis six further explored the idea that video games have different effects on gamers, and was not supported regarding changes in empathy after exposure to either the violent or non-violent video game stimulus nor was it supported that there were group differences when gender was utilized as a control. A possible explanation for empathy remaining largely static before and after exposure to the stimulus may be evidence that empathy is too complex a process to be altered by a simple thirty-minute violent game session. It could also be that empathy is morally grounded, and previous research (Fink et al., 2009) provided evidence that morality has more power than a self-selected social identity. Another issue may be that the scale utilized to measure empathy was a global measurement and was not a state measurement like the state hostility scale.

Regarding how strongly non-gamers reacted to the video game stimulus with state hostility, it is obvious that even if no effect was seen on casual gamers and core gamers, there should have been some change for non-gamers. No change across all the groups does not support hypothesis six, but it does reveal that empathy may not be a useful way to examine how violent video games can affect people. Results from the research questions did provide evidence that empathy levels are different between non-gamers, casual gamers, and core gamers, even if they were not significantly different. In this case, however, gamers had the lowest levels of empathy when compared to non-gamers and casual gamers. Unfortunately, just like Matthews (2015), the present paper cannot reasonably argue that gamers are more adaptable than non-gamers. Unfortunately, this dissertation did not test any mechanisms to determine whether gamers have this unique reaction because they are robust to violent stimuli or because they have become desensitized to them. However, this experiment provided evidence that gamers are clearly different when it comes to processing video game stimuli.

The results from hypothesis seven indicate that task orientation was the focus of all participants regardless of what type of gamer they were categorized as after their scores were examined. Additionally, the results revealed that non-gamers were more focused on the violent content than casual gamers and core gamers. Even though it was not significant, it was revealed that gamers were utilizing task-oriented words more than non-gamers. However, it could be argued that this task focus was primed by the experimental prompts because the prompts told participants to focus on their missions and that they would lose the opportunity to obtain their extra credit if they did not focus only on the mission they were given. Hypothesis seven should be further explored

through surveys of the three types of gamers, perhaps by asking questions like “What do you pay attention to whenever you play games?” or “What do you pay attention to when you watch your friends play video games?” An open-ended survey will ensure that there is no mission priming; an experiment without specific goals may also be suitable. Aside from an open-ended survey, when examining topics like task orientation it is important to ensure that no priming language is used when explaining experiments to participants. These results should be utilized as a caution to not use explicit language such as mentioning tasks and missions while describing the experiment to participants, so a priming effect is avoided.

Even though the mechanisms through which these reactions are created were not tested, the consistency of the results indicates that core gamers are possibly inoculated against the effects of a violent video game. This makes relevant the comparison of the research conducted by Szyck et al. (2016). This study examined how the brain reacted when presented with violent game stimuli. Szyck et al. (2016) argued that fMRI scans show that gamers’ brains are quieter, which makes them robust to violent content. Szyck et al. (2016) argue that being robust means that a person can handle violent stimuli without it having any effect on their behaviors or attitudes. A robust person will not demonstrate any negative effects. Hypotheses five and six both provided evidence that gamers have little to no change in their state hostility and empathy after being exposed to a violent video game. The lack of change between the pre-test and post-tests provide some evidence that gamers react differently to the negative effects of a violent video game when examined cross-sectionally. However, the results also provide evidence that longitudinal effects may be desensitizing core gamers, because they had the highest state

hostility in the pre-test and the lowest empathy as well. Hypotheses five and six focus on negative outcomes, but another interesting result takes place when examining positive outcomes. Hypotheses one, three, and four examined how gamer identity impacted positive attitudes about video games, as well as how it impacted the enjoyment of playing the violent video game for the experiment. When examining positive outcomes related to video games, core gamers had the highest scores out of all the gamer types. There is a switch that happens with core gamers when outcomes go from negative to positive, which provides evidence for a bias amongst them.

Casual gamers' results from the present study are conflicted, because some of their results more closely relate to non-gamer results, while others relate to core gamer results. Reactions to the positive effects and attitudes of video games provide the primary evidence that casual gamers need to be included with dominant gamer ingroup, and not with the non-gamer outgroup. There are many factors that could possibly contribute to why casual gamers had similar results to non-gamers for state-hostility as well as the relationship between difficulty and enjoyment. Skill is arguably the biggest factor that was not explored that could provide an explanation as to why casual gamers has similar hostile reactions to the violent video game stimuli. If this study had been conducted on a tablet as opposed to a console, their reactions could have been different. If casual gamers are largely playing their games on their cell phones in short bursts, it would stand to reason that they would become frustrated with using a video game console controller. Even with the similarities that emerged between casual gamers and non-gamers during the experiment, casual gamers need to be treated as a separate group to continue exploring the evolution of the gamer identity.

Ultimately, the results presented demonstrate that core gamers have a clear favorable bias toward video games. This bias could be seen as an extension of social identity theory to relevant objects related to the group identity. Both Shaw (2012; 2013) and Neys et al. (2014) examined gamer identity and based those examinations off the object that brings gamers together, the video game. This bias could also be an extension of the fact that gamers self-selected their social identity, and perhaps a black sheep effect takes place when they are exposed to negative game stimuli in order for them to defend their continual choice to play video games. For core gamers and casual gamers, the video game clearly creates a bias of attitudes, opinions, and as this study demonstrated, the experience of playing a violent video game. Results that were obtained from the present study provide a back bone to further explore whether different video game objects can create the same results for state hostility and empathy. It could be possible that non-violent games garner similar results, but that needs to be explored in future studies. If video games were not relevant to core gamers and casual gamers, these results would have been far less consistent.

This study has furthered the utility of the social identity approach in video game studies by demonstrating how social identity theory and self-categorization theory work together to explore group differences between ingroups and outgroups as well as exploring individuals within a group who share some dissenting opinions and attitudes. This study also furthered the argument that self-selected social identities are just as influential and prescribed social identities (Brewer, 1991). This study utilized the social identity approach as was intended by Turner (Turner & Reynolds, 2012). What this means is that when groups differences are found via social identity theory, then self-

categorization theory is utilized as well to explore individual differences within the group. The present study accomplished this by extending from the GIS and creating an experiment to examine the differences between non-gamers, casual gamers, and core gamers. This study furthers the use of the social identity approach because it provides evidence that demonstrates between groups differences as well as within group differences. As society continues to evolve, it is important to make proper comparisons when conducting experimental research. When a group is forgotten, it can lead to skewed results, or as Shaw (2012) pointed out, it can lead to research that focuses on the missed population, but does not integrate them with the larger group. It is important to examine these group differences whenever possible to provide more detailed and nuanced results.

Beyond the social identity approach, the present study also provided more evidence that flow is the mechanism that can influence enjoyment for casual gamers and core gamers. Gamer type, flow, and enjoyment having a positive relationship furthers flow theory because significant results were obtained even when controlling for need for cognition, gender, and time spent playing video games weekly. That result demonstrates that flow is a high functioning process that goes beyond gender, need for intellectual stimulation, and is immune to the effects of repeated exposure. The results also add to flow theory by adding to previous studies that have utilized flow and further demonstrating that a gameplay session of twenty-five minutes is enough to induce high flow levels which brings up enjoyment levels. The evidence that was provided through controlling for the amount of time spent playing video games weekly suggests that flow is a robust process that does not alter even after there has been repeated exposure to the

experimental stimulus in the daily lives of participants. This provides evidence that, within video game experimentation, flow will activate amongst participants regardless of exposure to video game stimuli. Flow is an important part of the video game experience, and should continue to be utilized within video game experimentation. Although the current study provided a great deal of new evidence toward biases that emerge when gamer type is examined, there were still limitations to the study.

Limitations

As with most experimental research, this study is not without its limitations. One of the biggest limitations is that *Grand Theft Auto IV* does not allow for experimenters to have explicit control over exactly what participants are exposed to during the course of the experiment. The reason that this becomes an issue is that it harms the internal validity of the study. Clear evidence was provided to demonstrate this problem because three participants had to be dropped because they chose to ignore directions and used the freedom of the game to commit violent acts when they were supposed to be playing non-violently. However, *Grand Theft Auto IV* was a commercial success and it is important for researchers to utilize materials that participants are likely to encounter in the real world. This study has high external validity because the series has sold over 250 million copies, as mentioned previously. A modified version of *Grand Theft Auto IV* may have been easier to control, but its real-world implications would no longer be applicable. Another limitation of the study is that the experimental condition did not induce significantly different results over time. The purpose of the experimental conditions was to ensure that the level of violence was properly manipulated so participants would experience high levels of violence or low levels of violence. Although not explored in the

present paper, the reflection paragraphs had a recurring subject beyond violence and missions, which was frustration. If frustration was a consistent drain on the experience of non-gamers and casual gamers, it would explain why the experimental conditions failed to produce significantly different state hostility levels between groups. However, this is a limitation because frustration was not measured via a survey instrument, nor coded for when examining the participants' reflections on their time playing *Grand Theft Auto IV*.

An additional limitation is that the participants were not separated by gamer type prior to completing the experiment. In the future, the gamer bias questionnaire should be given to participants a few weeks prior to the experiment to sort participants into their designated gamer type. This would allow for a proper randomization of the three gamer types, and it would ensure that researchers could gather the necessary amount of each gamer type to create appropriate experimental cell sizes. The fact that this study was cross-sectional is also a limitation because there is no way to tell whether people's gamer identity score changes over time or applies to the broader population beyond college students. This could potentially be utilized to examine the mobility of the groups and explore why gamers transition to casual or non-gamers, and vice versa. The fact that this sample consisted only of college students was also a limitation because these results cannot be generalized to the public. However, this limitation opens the doors to future research endeavors to examine other adult and children gamer populations.

A limitation to the content analysis methods is that the responses were personally coded by the researcher, and no coders were trained to examine the paragraphs. This must be done in the future to improve the results of the tests, because it will increase the reliability of the results. These methods were employed for this dissertation to

demonstrate that there was a difference in responses between the gamer types. Additionally, it also demonstrated the utility in adding response paragraphs because it allowed for further exploration of the differences between the gamer types.

Future Directions and Conclusion

This dissertation has provided evidence that furthers research on video games in the social sciences. Although the results from the first four research questions could suggest that core gamers may have become desensitized to violent video game stimuli, the same results also indicated that violent game stimuli cannot alter a core gamer's state hostility or empathy negatively. These results should be explored with further cross-sectional experiments that examine the immediate effects of playing a video game. State hostility and empathy could be explored with non-violent games as the stimulus, or violent video games could be used as a stimulus and additional negative attitude and mood changes could be explored to see if core gamers will maintain their neutral change from pre-test to post-test.

Another contribution made by this dissertation to communication and game studies is the further establishment of the casual gamer as a social identity group that can be used for comparison with non-gamers and core gamers. Although casual gamers often had significantly lower scores than core gamers, they had significantly more positive attitudes toward video games, and significantly more enjoyment from their experience in the experiment. Those results indicate that casual gamers are a part of the dominant ingroup of the core gamer because, if they were more closely aligned with non-gamers, then they would not have reached significantly higher levels on those important variables. Casual gamers may have experienced a similar increase to non-gamers in state hostility,

but that could have been due to the fact that the type of games casual gamers consume are not anywhere close to the level of violence that is presented in *Grand Theft Auto IV*. Neys et al. (2014) first proposed the casual gamer in their article creating the GIS, but this dissertation is the first instance of utilizing casual gamers to examine and interpret results from an experiment. Utilizing casual gamers to examine group differences between them, non-gamers, and core gamers provide another group with which researchers can examine the multitude of effects provided by video games. The results of the experiment conducted provided clear evidence that casual gamers are a separate group with regard to how they react and process video game stimuli, as compared to non-gamers and core gamers. Even when there were not significant differences, the mean scores for casual gamers moved in the direction of core gamers, as opposed to going below non-gamers. Establishing core gamers is also important for the future of video game research because it is important for scientists to understand how consistent consumers of video games react to various content. Failing to make this distinction between the three gamer groups in future game studies could have a negative impact on results by pulling non-gamer reactions up or core gamer reactions down if casual gamers are divided evenly between those two groups in a sample. Beyond this, the establishment of combining the GBA scale with a gamer identity and gamer ingroup bias scale to determine separate gamer identities will allow future researchers to administer the scales prior to experimentation so they can recruit from each group of gamers accordingly. This could potentially correct past problems of failing to address the fact that negative changes after exposure to violent video game stimuli only happen for non-gamers and casual gamers, as well as help to curb the consistent disagreement amongst scholars as to

whether games are a good or bad medium (Ferguson & Colwell, 2017). This argument is ongoing and does nothing to further the literature generally. For example, Ferguson and Colwell (2017) conducted a meta-analysis looking at negative video game effects and examining the differences between those scholars who found mostly negative effects and those who found null results more often than negative effects. One unfortunate aspect of this article is that it argues that older scientists are usually those who find video games problematic. An argument that older scientists are negatively biased toward video games does not contribute to game studies literature. The combination gamer type scale would eliminate bias because the groups allow for prior recruitment of the three gamer types, which could prevent researchers from having to rely on a convenient sample of non-gamers. Recruitment processes may take longer to get large enough sample sizes to test the differences between the various categories, but it would be worth it for the sake of sounder science. As this dissertation has established three distinct groups of gamers with three distinct reactions to violent stimuli in regard to hostility and empathy, the three groups should be explored further in various video game effects areas. This dissertation did not examine pro-social effects, video game sexism, racism, the virtual threat effect, or live competition, and could not properly examine attention selection. As enjoyment and gamer type score had a positive relationship, it would be interesting to reverse code enjoyment items and see if the relationship between gamer type score and enjoyment remained as strong and consistent as it did throughout the present study. All these areas of video game effects should be tested with the gamer type scale. If the results obtained while examining these difference effects also demonstrate clear differences between the three gamer groups, this dissertation could be used as a building block toward a theory

examining gamer biases exclusively. Because of their interaction, video games provide a unique medium that creates strong effects. This dissertation began by discussing how large the video game industry has grown over the past two decades and how it continues to rapidly expand. Video game companies continue to be more innovative and provide researchers with more avenues in which to conduct research. With the advent of consoles like the Nintendo Switch, it will become easier for scientists to gather multiple participants for research at the same time. There will be a continual need to conduct video game research because video games only continue to advance and grow more powerful. Future research can utilize the scales from this dissertation to categorize participants and create experimental groups on gamer types, which would allow researchers to focus on each gamer type. The scales from this dissertation could also be used in conjunction with evaluations of sexism or aggressive behavior to further explore the linear relationship between gamer type and its impact on behaviors and attitudes beyond video games and hostility. Additionally, testing these processes may further lead to evidence that gamers are immune/inoculated to the negative effects that violent and sexist video games have shown in the past. If future research that utilizes the gamer type score categorized into the three gamer types provides more evidence for the consistency of reactions experienced by core gamers to video game stimulus, the results presented in this dissertation could be the initial formation of a theory that explores this clear gamer bias and the mechanisms that prevent any effects on core gamers.

References

- Adachi, P. J. C., Hodson, G., Willoughby, T., Blank, C., and Ha, A. (2016). From outgroups to allied forces: Effect of intergroup cooperation in violent and nonviolent video games on boosting favorable outgroup attitudes. *Journal of Experimental Psychology: General*, *145*(3), 259–265.
<https://doi.org/10.1037/xge0000145>
- Adams, E. (2000, August 1). Casual versus core. *Gamasutra*. Retrieved from http://www.gamasutra.com/view/feature/131529/casual_versus_core.php
- Anderson, C. A., and Carnagey, N. L. (2009). Causal effects of violent sports video games on aggression: Is it competitiveness or violent content? *Journal of Experimental Social Psychology*, *45*(4), 731–739.
<https://doi.org/10.1016/j.jesp.2009.04.019>
- Anderson, C. A., and Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, *78*(4), 772–790. <https://doi.org/10.1037//0022-3514.78.4.772>
- Anderson, C. A., and Murphy, C. R. (2003). Violent video games and aggressive behavior in young women. *Aggressive Behavior*, *29*(5), 423–429.
<https://doi.org/10.1002/ab.10042>
- Anderson, C. A., Sakamoto, A., Gentile, D. A., Ihori, N., Shibuya, A., Yukawa, S., ... Kobayashi, K. (2008). Longitudinal effects of violent video games on aggression in Japan and the United States. *Pediatrics*, *122*(5), e1067–e1072.
<https://doi.org/10.1542/peds.2008-1425>

- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., ... 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*(2), 151–173.
- Ballard, M. E., and Lineberger, R. (1999). Video game violence and confederate gender: Effects on reward and punishment given by college males. *Sex Roles, 41*(7-8), 541–558. <https://doi.org/10.1023/A:1018843304606>
- Barreto, M., and Ellemers, N. (2003). The effects of being categorised: The interplay between internal and external social identities. *European Review of Social Psychology, 14*, 139–170. <https://doi.org/10.1080/10463280340000045>
- Bartholow, B. D., Bushman, B. J., and Sestir, M. A. (2006). Chronic violent video game exposure and desensitization to violence: Behavioral and event-related brain potential data. *Journal of Experimental Social Psychology, 42*(4), 532–539. <https://doi.org/10.1016/j.jesp.2005.08.006>
- Behm-Morawitz, E. (2014). Examining the intersection of race and gender in video game advertising. *Journal of Marketing Communications, 0*(0), 1–20. <https://doi.org/10.1080/13527266.2014.914562>
- Behm-Morawitz, E., Pennell, H., and Speno, A. G. (2016). The effects of virtual racial embodiment in a gaming app on reducing prejudice. *Communication Monographs, 83*(3), 396–418. <https://doi.org/10.1080/03637751.2015.1128556>
- Bozanta, A., Kutlu, B., Nowlan, N., and Shirmohammadi, S. (2016). Effects of serious games on perceived team cohesiveness in a multi-user virtual environment. *Computers in Human Behavior, 59*, 380–388. <https://doi.org/10.1016/j.chb.2016.02.042>

- Braun, B., Stopfer, J. M., Müller, K. W., Beutel, M. E., and Egloff, B. (2016). Personality and video gaming: Comparing regular gamers, non-gamers, and gaming addicts and differentiating between game genres. *Computers in Human Behavior*, 55, Part A, 406–412. <https://doi.org/10.1016/j.chb.2015.09.041>
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17(5), 475–482. <https://doi.org/10.1177/0146167291175001>
- Bricker, L., and Bell, P. (2012). “GodMode is his video game name”: Situating learning and identity in structures of social practice. *Cultural Studies of Science Education*, 7(4), 883–902. <https://doi.org/10.1007/s11422-012-9410-6>
- Brockmyer, J. H., Fox, C. M., Curtiss, K. A., McBroom, E., Burkhart, K. M., and Pidruzny, J. N. (2009). The development of the game engagement questionnaire: A measure of engagement in video game-playing. *Journal of Experimental Social Psychology*, 45(4), 624–634. <https://doi.org/10.1016/j.jesp.2009.02.016>
- Cacioppo, J. T., Petty, R. E., & Chuan Feng Kao. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, 48(3), 306.
- Carré, A., Stefaniak, N., D’Ambrosio, F., Bensalah, L., and Besche-Richard, C. (2013). The basic empathy scale in adults (BES-A): Factor structure of a revised form. *Psychological Assessment*, 25(3), 679–691. <https://doi.org/10.1037/a0032297>
- Chen, L.-X., and Sun, C.-T. (2016). Self-regulation influence on game play flow state. *Computers in Human Behavior*, 54, 341–350. <https://doi.org/10.1016/j.chb.2015.08.020>

- Chess, S., and Shaw, A. (2015). A conspiracy of fishes, or, how we learned to stop worrying about #GamerGate and embrace hegemonic masculinity. *Journal of Broadcasting and Electronic Media*, 59(1), 208–220.
<https://doi.org/10.1080/08838151.2014.999917>
- Cragg, O. (2016, November 3rd). Grand Theft Auto life-time sales hit 250 million, GTA 5 and GTA Online ships 70 million units. *International Business Times*. Retrieved from <http://www.ibtimes.co.uk/grand-theft-auto-life-time-sales-hits-250-million-gta-5-gta-online-ships-70-million-units-1589687>
- Csikszentmihalyi, M. (1991). *Flow*. Harper Collins. New York, NY.
- De Grove, F., Courtois, C., and Van Looy, J. (2015). How to be a gamer! Exploring personal and social indicators of gamer identity. *Journal of Computer-Mediated Communication*, 20(3), 346–361. <https://doi.org/10.1111/jcc4.12114>
- Deselms, J. L., and Altman, J. D. (2003). Immediate and prolonged effects of videogame violence. *Journal of Applied Social Psychology*, 33(8), 1553–1563.
<https://doi.org/10.1111/j.1559-1816.2003.tb01962.x>
- Dietz, T. L. (1998). An examination of violence and gender role portrayals in video games: Implications for gender socialization and aggressive behavior. *Sex Roles: A Journal of Research*, 38(5-6), 425–42.
- Dill, K. E., and Dill, J. C. (1998). Video game violence: A review of the empirical literature. *Aggression and Violent Behavior*, 3(4), 407–428.
[https://doi.org/10.1016/S1359-1789\(97\)00001-3](https://doi.org/10.1016/S1359-1789(97)00001-3)
- Doolittle, A., and Faul, A. C. (2013). Civic engagement scale. *SAGE Open*, 3(3), 2158244013495542. <https://doi.org/10.1177/2158244013495542>

- Downs, E., and Smith, S. L. (2009). Keeping abreast of hypersexuality: A video game character content analysis. *Sex Roles*, 62(11-12), 721–733.
<https://doi.org/10.1007/s11199-009-9637-1>
- Entertainment Software Association. (2003). *Essential facts about the computer and video game industry*. Washington, DC
- Entertainment Software Association. (2016). *Essential facts about the computer and video game industry*. Washington, DC
- Engelhardt, C. R., Bartholow, B. D., Kerr, G. T., and Bushman, B. J. (2011). This is your brain on violent video games: Neural desensitization to violence predicts increased aggression following violent video game exposure. *Journal of Experimental Social Psychology*, 47(5), 1033–1036.
<https://doi.org/10.1016/j.jesp.2011.03.027>
- Falk, G. (2001). *Stigma: how we treat outsiders*. Amherst, N.Y: Prometheus Books.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Ferguson, C. J., & Colwell, J. (2017). Understanding why scholars hold different views on the influences of video games on public health. *Journal of Communication*, n/a–n/a. <https://doi.org/10.1111/jcom.12293>
- Fink, J. S., Parker, H. M., Brett, M., & Higgins, J. (2009). Off-field behavior of athletes and team identification: Using social identity theory and balance theory to explain fan reactions. *Journal of Sport Management*, 23(2), 142–155.

- Fu, F.L., Su, R.C., & Yu, S.C. (2009). EGameFlow: A scale to measure learners' enjoyment of e-learning games. *Computers & Education*, 52(1), 101–112. <https://doi.org/10.1016/j.compedu.2008.07.004>
- Funk, J. B., and Buchman, D. D. (1996). Playing violent video and computer games and adolescent self-concept. *Journal of Communication*, 46(2), 19–32.
- Funk, J. B., Buchman, D. D., Jenks, J., and Bechtoldt, H. (2003). Playing violent video games, desensitization, and moral evaluation in children. *Journal of Applied Developmental Psychology*, 24(4), 413–436. [https://doi.org/10.1016/S0193-3973\(03\)00073-X](https://doi.org/10.1016/S0193-3973(03)00073-X)
- Gabbiadini, A., Riva, P., Andrighetto, L., Volpato, C., and Bushman, B. J. (2016). Acting like a tough guy: Violent-sexist video games, identification with game characters, masculine beliefs, and empathy for female violence victims. *PLoS ONE*, 11(4), 1–14. <https://doi.org/10.1371/journal.pone.0152121>
- Gentile, D. A., Swing, E. L., Anderson, C. A., Rinker, D., and Thomas, K. M. (2016). Differential neural recruitment during violent video game play in violent- and nonviolent-game players. *Psychology of Popular Media Culture*, 5(1), 39–51. <https://doi.org/10.1037/ppm0000009>
- Gibb, G. D., Bailey, J. R., Lambirth, T. T., and Wilson, W. P. (1983). Personality differences between high and low electronic video game users. *Journal of Psychology*, 114(2), 159.
- Gitter, S. A., Ewell, P. J., Guadagno, R. E., Stillman, T. F., and Baumeister, R. F. (2013). Virtually justifiable homicide: The effects of prosocial contexts on the link

between violent video games, aggression, and prosocial and hostile cognition.

Aggressive Behavior, 39(5), 346–354. <https://doi.org/10.1002/ab.21487>

Granek, J. A., Gorbet, D. J., and Sergio, L. E. (2010). Extensive video-game experience alters cortical networks for complex visuomotor transformations. *Cortex*, 46(9), 1165–1177. <https://doi.org/10.1016/j.cortex.2009.10.009>

Greene, S. (1999). Understanding party identification: A social identity approach.

Political Psychology, 20(2), 393–403. <https://doi.org/10.1111/0162-895X.00150>

Guegan, J., Moliner, P., and Buisine, S. (2015). Why are online games so self-involving:

A social identity analysis of massively multiplayer online role-playing games.

European Journal of Social Psychology, 45(3), 349–355 7p.

<https://doi.org/10.1002/ejsp.2103>

Hawkins, Z. (2013, June 3). The spectrum of casual vs. hardcore gamers. *Lazy Gamer*.

Retrieved from <http://www.lazygamer.net/editorial/the-spectrum-of-casual-vs-hardcore-gamers/>

Heere, B., & James, J. D. (2007). Stepping outside the lines: Developing a multi-dimensional team identity scale based on social identity theory. *Sport*

Management Review (Sport Management Association of Australia & New Zealand), 10(1), 65–91.

Hoffswell, J. and Behm-Morawitz (no date). Gamer behavior and attitude scale

Hoffswell, J. and Choi, G. (no date) The battle of tablet vs. controller: Analyzing presence, enjoyment, and effort justification in different technology platforms

IGN Entertainment. (2011) The influence of gamers. *IGN*. Retrieved from

<http://corp.ign.com/influence>

Ivory, J. D., Williams, D., Martins, N., and Consalvo, M. (2009). Good clean fun? A content analysis of profanity in video games and its prevalence across game

systems and ratings. *CyberPsychology and Behavior*, 12(4), 457–460.

<https://doi.org/10.1089/cpb.2008.0337>

Kabrick, A. (2013, May 28). The four types of gamer-Article. *VG Chartz*. Retrieved from <http://www.vgchartz.com/article/256049/the-four-types-of-gamer/>

Klasen, M., Weber, R., Kircher, T. T. J., Mathiak, K. A., and Mathiak, K. (2012). Neural contributions to flow experience during video game playing. *Social Cognitive and Affective Neuroscience*, 7(4), 485–495.

Kneer, J., Elson, M., and Knapp, F. (2016). Fight fire with rainbows: The effects of displayed violence, difficulty, and performance in digital games on affect, aggression, and physiological arousal. *Computers in Human Behavior*, 54, 142–148. <https://doi.org/10.1016/j.chb.2015.07.034>

Kutner, L., and Olson, C. (2008). *Grand Theft Childhood: The Surprising Truth About Violent Video Games and What Parents Can Do*. Simon and Schuster.

Loersch, C., & Arbuckle, N. L. (2013). Unraveling the mystery of music: music as an evolved group process. *Journal Of Personality And Social Psychology*, 105(5), 777–798. <https://doi.org/10.1037/a0033691>

Lawrence, N. (2011, June, 17). The problems of defining a hardcore gamer. *PC Authority*. Retrieved from <http://www.pcauthority.com.au/Feature/260885,the-problems-of-defining-a-hardcore-gamer.aspx>

Lien, T. (2013, August 9). Core gamers, mobile games and the origins of the midcore audience. *Polygon*. Retrieved from <http://www.polygon.com/2013/8/9/4604088/the-rise-of-midcore-gaming>

Maghrabi, R. O., Oakley, R. L., and Nematy, H. R. (2014). The impact of self-selected identity on productive or perverse social capital in social network sites.

Computers in Human Behavior, 33, 367–371.

<https://doi.org/10.1016/j.chb.2013.08.015>

Martin, C. (2012). Video games, identity, and the constellation of information. *Bulletin of Science, Technology and Society*, 32(5), 384–392.

<https://doi.org/10.1177/0270467612463797>

Matthews, N. L. (2015). Too good to care: The effect of skill on hostility and aggression following violent video game play. *Computers in Human Behavior*, 48, 219–225.

<https://doi.org/10.1016/j.chb.2015.01.059>

Moyer-Gusé, E. (2015). Extending the examination of audience involvement with media personae: Response to Brown. *Communication Theory*, 25(3), 284–289.

<https://doi.org/10.1111/comt.12071>

Nelson, N. (2013, November 22). Hard-core and casual gamers play in different worlds. *All Tech Considered: National Public Radio*. Retrieved from

<http://www.npr.org/sections/alltechconsidered/2013/11/29/246747168/hard-core-and-casual-gamers-play-in-different-worlds>

Neys, J. L. D., Jansz, J., and Tan, E. S. H. (2014). Exploring persistence in gaming: The role of self-determination and social identity. *Computers in Human Behavior*, 37,

196–209. <https://doi.org/10.1016/j.chb.2014.04.047>

Paaßen, B. b., Morgenroth, T., & Stratemeyer, M. (2017). What is a true gamer? The male gamer stereotype and the marginalization of women in video game culture. *Sex Roles*, 76(7/8), 421–435

Poon, T. (2011, September 23). The hardcore gaming myth. *Kotaku*. Retrieved from <http://kotaku.com/5843253/the-hardcore-gaming-myth>

- Przybylski, A. K., and Weinstein, N. (2016). How we see electronic games. *PeerJ*, 4, e1931. <https://doi.org/10.7717/peerj.1931>
- Robinson, T., Callister, M., Clark, B., and Phillips, J. (2008). Violence, sexuality, and gender stereotyping: A content analysis of official video game web sites. *Web Journal of Mass Communication Research*, 13, 1–17.
- Scott, D. (1995). The effect of video games on feelings of aggression. *Journal of Psychology*, 129(2), 121.
- Shaw, A. (2012). Do you identify as a gamer? Gender, race, sexuality, and gamer identity. *New Media and Society*, 14(1), 28–44.
<https://doi.org/10.1177/1461444811410394>
- Shaw, A. (2013). Rethinking game studies: A case study approach to video game play and identification. *Critical Studies in Media Communication*, 30(5), 347–361.
<https://doi.org/10.1080/15295036.2012.701013>
- Sherry, J. (2001). The effects of violent video games on aggression. *Human Communication Research*, 27(3), 409–431. <https://doi.org/10.1111/j.1468-2958.2001.tb00787.x>
- Siegel, J. (2014, May 14). This is how much time the average gamer spends playing games every week. *BGR*. Retrieved from <http://bgr.com/2014/05/14/time-spent-playing-video-games/>
- Siegel, S.J. (2008, June 8). Are you a mid-core gamer? *engadget*. Retrieved from <https://www.engadget.com/2008/02/06/are-you-a-mid-core-gamer/>
- Szycik, G. R., Mohammadi, B., Hake, M., Kneer, J., Samii, A., Münte, T. F., and Wildt, B. T. te. (2016). Excessive users of violent video games do not show emotional

desensitization: an fMRI study. *Brain Imaging and Behavior*, 1–8.

<https://doi.org/10.1007/s11682-016-9549-y>

Tear, M. J., and Nielsen, M. (2014). Video games and prosocial behavior: A study of the effects of non-violent, violent and ultra-violent gameplay. *Computers in Human Behavior*, 41, 8–13. <https://doi.org/10.1016/j.chb.2014.09.002>

Todd, C. (2015). Commentary: GamerGate and resistance to the diversification of gaming culture. *Women's Studies Journal*, 29(1), 64–67.

Turner, J. C., Brown, R. J., and Tajfel, H. (1979). Social comparison and group interest in ingroup favouritism. *European Journal of Social Psychology*, 9(2), 187–204. <https://doi.org/10.1002/ejsp.2420090207>

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford: Blackwell.

Turner, J.C., and Reynolds, K.J. (2012). Self-categorization theory. In P. A. M. Van Lange, A. W. Kruglanski, and E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 399-417). London, England: Sage Publications Ltd.

Vallett, D. B., Lamb, R. L., and Annetta, L. A. (2013). The gorilla in the room: The impacts of video-game play on visual attention. *Computers in Human Behavior*, 29(6), 2183–2187. <https://doi.org/10.1016/j.chb.2013.05.001>

Waddell, T. F., Ivory, J. D., Conde, R., Long, C., and McDonnell, R. (2014). White man's virtual world: A systematic content analysis of gender and race in massively multiplayer online games. *Journal of Virtual Worlds Research*, 7(2), 1–14.

Wawro, A. (2015). Report: U.S. average daily mobile game time drops over 30% in a year. *Gamasutra*. Retrieved from http://www.gamasutra.com/view/news/252522/Report_US_average_daily_mobile

_game_time_drops_over_30_in_a_year.php

West, R., and Bailey, K. (2014). Video games and attention. In K. Dill (Ed.), *The Oxford Handbook of Media Psychology*. Oxford University Press. New York, NY

Wiegman, O., and van Schie, E. G. M. (1998). Video game playing and its relations with aggressive and prosocial behaviour. *British Journal of Social Psychology*, 37(3), 367–378. <https://doi.org/10.1111/j.2044-8309.1998.tb01177.x>

- ___ I feel willful.
- ___ I feel friendly.
- ___ I feel aggravated.
- ___ I feel understanding.
- ___ I feel tender.
- ___ I feel amiable.
- ___ I feel stormy.
- ___ I feel mad.
- ___ I feel polite.
- ___ I feel mean.
- ___ I feel discontented.
- ___ I feel bitter.
- ___ I feel like banging on a table.
- ___ I feel burned up.
- ___ I feel irritated.
- ___ I feel like yelling at somebody.
- ___ I feel frustrated.
- ___ I feel cooperative.
- ___ I feel kindly.
- ___ I feel like swearing.
- ___ I feel unsociable.
- ___ I feel cruel.
- ___ I feel outraged.
- ___ I feel good-natured.
- ___ I feel agreeable.
- ___ I feel disagreeable.
- ___ I feel angry.
- ___ I feel enraged.
- ___ I feel offended.
- ___ I feel sympathetic.
- ___ I feel disgusted.
- ___ I feel vexed.
- ___ I feel tame.

Basic Empathy Scale (20 items)

1. My friends' emotions don't affect me much.
2. After being with a friend who is sad about something, I usually feel sad.
3. I can understand my friend's happiness when she/he does well at something.
4. I get frightened when I watch characters in a good scary movie.
5. I get caught up in other people's feelings easily.
6. I find it hard to know when my friends are frightened.
7. I don't become sad when I see other people crying.
8. Other people's feeling don't bother me at all.
9. When someone is feeling 'down' I can usually understand how they feel.
10. I can usually work out when my friends are scared.

11. I often become sad when watching sad things on TV or infilms.
12. I can often understand how people are feeling even before they tell me.
13. Seeing a person who has been angered has no effect on my feelings.
14. I can usually work out when people are cheerful.
15. I tend to feel scared when I am with friends who are afraid.
16. I can usually realize quickly when a friend is angry.
17. I often get swept up in my friends' feelings.
18. My friend's unhappiness doesn't make me feel anything.
19. I am not usually aware of my friends' feelings.
20. I have trouble figuring out when my friends are happy

	Strongly Disagree	Strongly Agree
I feel responsible for my community	1 2 3 4 5 6 7	
I believe I should make a difference in my community	1 2 3 4 5 6 7	
I believe that I have a responsibility to help the poor and the hungry	1 2 3 4 5 6 7	
I am committed to serve in my community	1 2 3 4 5 6 7	
I believe that all citizens have a responsibility to their community	1 2 3 4 5 6 7	
I believe that it is important to be informed of community issues	1 2 3 4 5 6 7	
I believe that it is important to volunteer	1 2 3 4 5 6 7	
I believe that it is important to financially support charitable organizations	1 2 3 4 5 6 7	

Need for cognition scale that goes from -4 to +4

1. I would prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun.*
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.*
5. I try to anticipate and avoid situations where there is likely a chance I will have to think in depth about something.*
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to.*
8. I prefer to think about small, daily projects to long-term ones.*
9. I like tasks that require little thought once I've learned them.*
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much.*
13. I prefer my life to be filled with puzzles that I must solve.
14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.*
17. It's enough for me that something gets the job done; I don't care how or why it works.*

18. I usually end up deliberating about issues even when they do not affect me personally.

Please write the number of hours per week that you play video games. For example if you play for 90 minutes a week then enter that as 1.5 hours. If you only play 20 minutes a week please enter that as .33 hours.

Below you will find a random number, please write it down on the piece of paper provided. You will need it to complete the survey after the video game play session.

Appendix B

You will be playing Grand Theft Auto IV for the XBOX 360. You are Nico a Russian immigrant trying to find success in Liberty City. Please utilize the controller diagram to familiarize yourself with the controls. The person running the lab will instruct you on what to do. You are playing game 1, so in case you forget what you need to do after you are finished practicing you may also refer to this sheet for directions. You are to complete missions for the character Little Jacob. His location is marked by an LJ on your map. Once you are at his location you will see a yellow arrow floating in space. Please walk into this arrow to start the mission. Make sure your head phones are on so you can hear the directions from the character. The map will guide you to the various locations you need to go to complete the mission. You will know that you have completed your mission when you see a + and a dollar amount appear in the upper right hand of the screen. If you complete one mission, please proceed to get another mission from Little Jacob.

You will be playing Grand Theft Auto IV for the XBOX 360. You are Nico a Russian immigrant trying to find success in Liberty City. Please utilize the controller diagram to familiarize yourself with the controls. The person running the lab will instruct you on what to do. You are playing game 2, so in case you forget what you need to do after you are finished practicing you may also refer to this sheet for directions. You are to complete taxi cab missions for the character Roman. You need to utilize your cell phone to call Roman and ask him for a job. Push up on the d-pad to bring up your cell phone, go into the phone book, select Roman, and select Job. The map will guide you to the various locations you need to go to complete the mission. You will know that you have completed your mission when you see a + and a dollar amount appear in the upper right hand of the screen. If you complete one mission, please proceed to get another mission from Roman. Please exercise caution while driving.

- I feel kindly.
 I feel like swearing.
 I feel unsociable.
 I feel cruel.
 I feel outraged.
 I feel good-natured.
 I feel agreeable.
 I feel disagreeable.
 I feel angry.
 I feel enraged.
 I feel offended.
 I feel sympathetic.
 I feel disgusted.
 I feel vexed.
 I feel tame.

Gamer Behavior Measures

Please select the amount that you agree or disagree with the following statements

	SD	D	NAD	A	SA
Video games are a useful way to spend time	1	2	3	4	5
Video games are a waste of time	1	2	3	4	5
I would make playing video games my career if possible	1	2	3	4	5
Video games are for young children	1	2	3	4	5
Video games are fun	1	2	3	4	5
I enjoy video games	1	2	3	4	5
Video games are boring	1	2	3	4	5
Most of my friends play video games	1	2	3	4	5
Video games are stupid	1	2	3	4	5
Video games are art					
I do not care for video games	1	2	3	4	5
Video games are interesting	1	2	3	4	5
My free time is spent playing video games	1	2	3	4	5
When a new game from my favorite series is released I buy it right away	1	2	3	4	5
I wait for games to come down in price before I buy them	1	2	3	4	5
I buy primarily new games	1	2	3	4	5
I buy primarily used games	1	2	3	4	5
I always finish the games that I start playing	1	2	3	4	5
I have finished most of the games that I own	1	2	3	4	5
I own many games	1	2	3	4	5
If you are carefully answering this survey please select the number 4 for this item	1	2	3	4	5

I own many games, but have not finished them all	1	2	3	4	5
I own many games and have finished them all	1	2	3	4	5
Finishing games is important to me	1	2	3	4	5
I like to collect trophies/achievements	1	2	3	4	5
I want more trophies/achievements than my friends	1	2	3	4	5
I enjoy online competition	1	2	3	4	5
I enjoy friendly competition	1	2	3	4	5
It is important that I win against my friends	1	2	3	4	5
I need to get 100% completion on games	1	2	3	4	5
I want to rank on online leaderboards	1	2	3	4	5
I do rank on online leaderboards	1	2	3	4	5
I am better than my friends at games	1	2	3	4	5
I often find myself replaying 1 game	1	2	3	4	5
I like to revisit the same game and replay it	1	2	3	4	5
I have spent most of my playing time on 1 game	1	2	3	4	5

Character Similarity

My character is similar to me	1	2	3	4	5
I resemble my character	1	2	3	4	5
My character resembles me	1	2	3	4	5
I identify with my character	1	2	3	4	5
My character is like me in many ways	1	2	3	4	5
My character is an extension of myself	1	2	3	4	5
When I am playing, it feels as if I am my Character	1	2	3	4	5
I feel like I am inside my character when Playing	1	2	3	4	5
In the game, it is as if I become one with my Character	1	2	3	4	5
When I am playing I am transported into my character	1	2	3	4	5
When playing, it feels as if my character's Body becomes my own	1	2	3	4	5
In the game, it is as if I act directly through My character	1	2	3	4	5

Please select the number 2 to demonstrate you are thoughtfully answering this survey

1	2	3	4	5
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Beliefs Supporting Aggression

1. It makes Nico feel big and tough when he pushes someone around.
 Strongly agree Agree Disagree Strongly disagree
2. If Nico backs down from a fight, everyone will think he's a coward.
 Strongly agree Agree Disagree Strongly disagree
3. Sometimes Nico has only two choices—get punched or punch the other guy first.
 Strongly agree Agree Disagree Strongly disagree
4. It's OK for Nico to hit someone if he just goes crazy with anger.
 Strongly agree Agree Disagree Strongly disagree
5. If Nico doesn't fight back when other guys push him around he will lose respect.
 Strongly agree Agree Disagree Strongly disagree
6. Nico would show he really loves his girlfriend if he gets in fights with other guys about her.
 Strongly agree Agree Disagree Strongly disagree

Scoring and Analysis

Point values are assigned as follows:

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

Point values are summed for each respondent and divided by the number of items. The intended range of scores is 1-4, with a higher score indicating more beliefs that support aggressive behavior.

Attitude Toward Violence

How much do you agree or disagree with the following statements? A=strongly agree e=strongly disagree

1. If I walk away from a fight, I'd be a coward ("chicken"). a b c d e
2. I don't need to fight because there are other ways to deal with being mad. a b c d e
3. It's okay to hit someone who hits you first. a b c d e
4. If a kid teases me, I usually cannot get him/her to stop unless I hit him/her. a b c d e
5. If I really want to, I can usually talk someone out of trying to fight with me. a b c d e
6. If I refuse to fight, my friends will think I'm afraid. a b c d e

(Item 4 was modified and item 6 added by Bosworth & Espelage, 1995.)

Scoring and Analysis

Point values are assigned as follows:

Strongly agree = 5

Agree = 4

Neither = 3

Disagree = 2

Strongly disagree = 1

Items 2 and 5 are reverse scored. A total score of 30 is possible by summing across all items. Higher

scores indicate a positive attitude toward violent strategies and limited use of nonviolent strategies.

Basic Empathy Scale (20 items)

1. My friends' emotions don't affect me much.
2. After being with a friend who is sad about something, I usually feel sad.
3. I can understand my friend's happiness when she/he does well at something.
4. I get frightened when I watch characters in a good scary movie.
5. I get caught up in other people's feelings easily.
6. I find it hard to know when my friends are frightened.
7. I don't become sad when I see other people crying.
8. Other people's feeling don't bother me at all.
9. When someone is feeling 'down' I can usually understand how they feel.
10. I can usually work out when my friends are scared.
11. I often become sad when watching sad things on TV or in films.
12. I can often understand how people are feeling even before they tell me.
13. Seeing a person who has been angered has no effect on my feelings.
14. I can usually work out when people are cheerful.
15. I tend to feel scared when I am with friends who are afraid.
16. I can usually realize quickly when a friend is angry.
17. I often get swept up in my friends' feelings.
18. My friend's unhappiness doesn't make me feel anything.
19. I am not usually aware of my friends' feelings.
20. I have trouble figuring out when my friends are happy

Difficulty scale

Please indicate how much you agree or disagree with each of the following by choosing ONE of the numbers using the 5-point scale below:

Strongly Disagree Disagree Neither agree nor disagree Agree Strongly Ag
I had a hard time playing the game

The game was easy

Too much time was given for playing the game

The game was hard

There was not enough time to play the game

I had an easy time playing the game

The game was impossible to play

Have you even played a game similar to the one your played before (regardless of the system you played it on)?

Yes

No

Game Flow Questionnaire

Concentration

- C3 Most of the gaming activities are related to the task assigned
- C4 No distraction from the task is highlighted
- C5 Generally speaking, I can remain concentrated in the game
- C6 I am not distracted from tasks that the player should concentrate on
- C7 I am not burdened with tasks that seem unrelated
- C8 Workload in the game is adequate

Goal Clarity

- G1 Overall game goals were presented in the beginning of the game
- G2 Overall game goals were presented clearly
- G3 Intermediate goals were presented in the beginning of each scene
- G4 Intermediate goals were presented clearly

Feedback

- F1 I receive feedback on my progress in the game
- F2 I receive immediate feedback on my actions
- F3 I am notified of new tasks immediately
- F4 I am notified of new events immediately
- F5 I receive information on my success (or failure) of intermediate goals immediately

Challenge

- H3 The game provides “hints” in text that help me overcome the challenges
- H4 The game provides “online support” that helps me overcome the challenges
- H5 The game provides video or audio auxiliaries that help me overcome the challenges
- H8 The difficulty of challenges increase as my skills improved.
- H9 The game provides new challenges with an appropriate pacing
- H10 The game provides different levels of challenges that tailor to different players

Autonomy

- A7 I feel a sense of control and impact over the game
- A8 I know next step in the game
- A9 I feel a sense of control over the game

Immersion

- I1 I forget about time passing while playing the game
- I2 I become unaware of my surroundings while playing the game
- I3 I temporarily forget worries about everyday life while playing the game
- I4 I experience an altered sense of time
- I5 I can become involved in the game
- I6 I feel emotionally involved in the game
- I7 I feel viscerally involved in the game

By taking this survey, you have the chance of winning a \$25 gift card. If you are the winner you have the option to donate part of your prize to charity. You can choose any amount to donate to charity and you will receive the remainder on the gift card. If you are the winner, please enter the amount of money from your \$25 that you would like to

donate to charity in dollars and cents (e.g. 1.25 would mean you want to donate one dollar and twenty five cents to charity.) In the event you do win we will contact you and we will ask you what is your preferred charity for donation.

Gamer Social identity

When someone criticizes gamers, it feels personal	1 2 3 4 5 6 7
I don't act like a typical gamer	1 2 3 4 5 6 7
I'm very interested in what others think about gamers	1 2 3 4 5 6 7
The limitations associated with gamers apply to me also	1 2 3 4 5 6 7
When I talk about gamers I usually say "we" instead of "they"	1 2 3 4 5 6 7
I have a number of qualities typical of gamers	1 2 3 4 5 6 7
Gamer's successes are my successes	1 2 3 4 5 6 7

Gamer Bias

To what extent do you feel pride when learning of the accomplishments of other gamers? Not at all 0 1 2 3 4 5 6 Very Much

To what extent do you dislike those people who are not gamers? Not at all 0 1 2 3 4 5 6 A lot

How much do you have in common with other gamers? Nothing 0 1 2 3 4 5 6 A lot

How important is being a gamer to you? Not at all 0 1 2 3 4 5 6 Very

To what extent do you agree with the following statement? "When I interact with others, I tend to think of myself as a gamer." Not at all 0 1 2 3 4 5 6 A lot

How often do you wear clothing associated with gaming? Never 0 1 2 3 4 5 6 All the time

How much does being a gamer say about who you really are? Nothing 0 1 2 3 4 5 6 A lot

If you had a child who was considering becoming a gamer, how disappointed would you be if they chose to become a jock? Not at all 0 1 2 3 4 5 6 A lot

To what extent do you agree with the following statement? "Knowing that I am a gamer tells others a lot about me." Not at all 0 1 2 3 4 5 6 Very Much

Please select the gender with which you identify

- Male (1)
- Female (2)
- Trans (3)

Q3 Please select the race with which you identify

- White (non-hispanic) (1)
- Hispanic (2)
- African American (3)
- Asian (4)
- Native American (5)
- Middle Eastern (6)
- Other (7)

Please enter your age

Please select your level of education

Some High School

High School Graduate or GED

Some College

Bachelors' degree awarded

Master's degree awarded

JD, MD, or PhD awarded

Please select your income level, if you still live at home with parents please select your family's income level

Less than \$20,000

\$20,000-\$40,000

\$40,001-\$60,000

\$60,001-\$80,000

\$80,001-\$100,000

\$100,001-\$120,000

\$120,001 or higher

APPENDIX D

Table 4

Pearson correlations between control variables, mediating variables, and dependent variables

Variables	1	2	3	4	5	6	7	8	9
1. Gender	-								
2. Need for Cognition	.138*	-							
3. Difficulty	-.644**	-.104	-						
4. Flow	.408**	.078	-.471**	-					
5. Enjoyment	.570**	.139*	-.620**	.604**	-				
6. Pre-State Hostility	.169**	.007	-.149*	.139*	.194**	-			
7. Post-State Hostility	-.179**	-.085	.346**	-.158*	-.320**	.293**	-		
8. Pre-Empathy	-.411**	-.033	.262**	-.075	-.243**	-.291**	.053	-	
9. Post-Empathy	-.415**	.007	.257**	-.131**	-.208**	-.275**	-.038	.826**	-

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

VITA

Joseph Hoffswell was born in Hinsdale, Illinois on December 14th, 1986. His father Kenneth, bought a Nintendo Entertainment System that same year, and by the time he was three years old his passion for video games had been ignited. Joseph continued to upgrade and update his video game systems as new video game consoles were released. Video games have been a consistent part of Joseph's life and he was inspired to pursue a PhD in Communication so he could research what motivates gamers and creates their social identities. Joseph is happily married to his wife Alexandria, and has two sons, Brock and Bennett. Joseph has passed on the love of video games to his two sons. Joseph looks to continue his research on video games and to explore more mediated communication research by exploring social media communities as well as how mediated communication impacts the parent/child relationship.