The effects of priming racial stereotypes through violent video games.

Dissertation

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By

Vincent J. Cicchirillo, M.A.

Graduate Program in the School of Communication

The Ohio State University

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Dissertation Committee

Dr. Chad Mahood, Advisor

Dr. Osei Appiah

Dr. David Roskos-Ewoldsen
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ABSTRACT

The following study examined the influence of racial-representations within violent video games on outcomes associated with aggression and stereotyping. Participants were randomly assigned to play one of two popular video games (*Grand Theft Auto: III* or *Grand Theft Auto: San Andreas*). *Grand Theft Auto: San Andreas* was deemed to be laden with stereotypical images of African-Americans and therefore might influence outcomes related to stereotyping more than a condition with a lack of racial-representations (*Grand Theft Auto: III*). An implicit association task (IAT) was invoked in order to understand if those individuals who had played *Grand Theft Auto: San Andreas* were primed with stereotype associations of African-Americans. The IAT did show that participants who played a video game with racial-representations influenced the processing of stereotype associations more than a game with a lack of those representations. Furthermore, there were significant differences between the experimental conditions and a control condition for aggressive affect. This research suggests findings for the General Aggression Model (GAM) and factors that need to be furthered examined within that model for future research.
Dedication

Dedicated to my Family & Friends
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Vita

June 1998........................Brooke High School

May 2003.............................B.S. Communication Studies, West Virginia University

June 2004.............................M.A. Communication Studies, West Virginia University

2004 to present.....................Graduate Teaching Associate, The School of

Communication, The Ohio State University

Field of Study

Major Field: Communication Studies
Table of Contents

Abstract ..............................................................................................................ii
Dedication ....................................................................................................iii
Acknowledgments ............................................................................................iv
Vita ....................................................................................................................v
List of Tables ..................................................................................................viii
List of Figures ...................................................................................................ix

Chapters

1. Introduction .................................................................................................1

2. The General Aggression Model .................................................................6
   2.1 The GAM and Video Games .................................................................11
   2.2 Moving Beyond the GAM ....................................................................17

3. Racial Representations and Video Games ...............................................25
   3.1 Priming and Stereotypes .....................................................................31
   3.2 Racial-representations and Identification ..........................................40
   3.3 Identification Theory and Whites ......................................................42
   3.4 Identification Theory and Blacks ......................................................43
   3.5 Distinctiveness Theory .......................................................................45
   3.6 Covariates ............................................................................................47
   3.7 Hypothesis Summary ..........................................................................48

4. Methods .......................................................................................................49
   4.1 Participants ..........................................................................................49
   4.2 Procedure ............................................................................................49
      4.2.1 Pilot Study ....................................................................................49
   4.3 Main Experiment ..................................................................................50
   4.4 Measures ..............................................................................................52
List of Tables

Table 1. Cross tabulation Ethnicity by Condition..........................................97
Table 2: Cross tabulation of participant race x participant gender for condition.....98
Table 3. Principal components factor analysis on affective aggression items.......99
List of Figures

Figure 1: Pilot Study Survey ...............................................................104
Figure 2: Pre-test Survey .................................................................108
Figure 3: Story Line sheet for Grand Theft Auto: III .........................109
Figure 4: Story line sheet for Grand Theft Auto: San Andreas ...............110
Figure 5: 35-item Affective measure ...............................................111
Figure 6: Aggressive Cognitive Scenarios .......................................115
Figure 7: Identification Items .........................................................116
Figure 8: Game Play questions & demographic questions ....................118
Figure 9: Hypothesis 1: Implicit Association Task .............................119
Figure 10: Exploratory analysis, positive affect ..................................120
Figure 11: Interaction between participant race by condition for perceived similarity .........................................................121
Figure 12: IAT response times when controlling for previous game-play ....122
CHAPTER 1

Introduction

Video game research has caught up to the levels of research examining violence on television and in the movies. For instance extensive research conducted by Anderson and colleagues (2000, 2001, 2004a, 2004b, 2007) has consistently shown a link between playing violent video games and negative outcomes associated with aggressive feelings, thoughts, and behaviors. Both correlational and experimental studies support a link between violent video games and aggressive thoughts and behavior (Anderson & Dill, 2000). Research even suggests that both children and adults are equally affected by violent video games (Anderson, 2004). However, research has begun to move beyond simple predictions of violence in video games and a link to aggressive outcomes.

Sherry (2001) conducted a recent meta-analysis and found evidence that human and fantasy aggression in violent video games produced larger effects sizes than aggression related to sports video games. Sherry further notes that future research needs to examine attributes related to video games, such as graphicness or humanistic qualities of the characters in order to further examine the strength and connection of video game violence to aggression. For instance, researchers have begun to look at
aspects in video games like story narratives (Schneider, Lang, Shin, & Bradley, 2004), first-person perspectives (Farrar, Krcmar, & Nowak, 2006), group size and competition (Eastin, 2007), frustration (Mahood, 2007), character gender (Eastin, 2006), and character race (Eastin, Appiah, & Cicchirillo, 2009). These features in combination with a player’s personal characteristics could significantly contribute to post game play outcomes.

This research may also point to effects beyond the priming of aggression. For instance, there may be reason to suggest that video games can prime stereotypes of ethnic/racial minorities through character representations (avatars) based upon that characters race or gender. According to Marriot (2004) a new trend in video games is to incorporate “urban” themes in the context and story lines. This trend includes more African-American characters in games like 25 to life, Def Jams: Fight of NY, and Notorious: Die to Drive. Marriot suggests that these urban themed games are providing America’s youth with stereotypical images of minorities in particular African-Americans. Thus, there is a need to examine video game play effects beyond the priming of aggressive cognitions and affect and look towards the priming of mental representations of minorities. Leonard (2006) suggests that researchers need to start examining race and racialized tropes within video games to understand their importance in society.

An important question that must be answered regarding the existing research is
how these stereotypical images influence our “real-life” experiences and visa-versa. Stereotypes can be seen under two individual distinctions: personal beliefs in those stereotypes and knowledge of those stereotypes. Personal beliefs relate to whether or not individuals believe stereotypes to be accurate portrayals of a group of individuals. Knowledge of the stereotypes means that individuals simply have knowledge about the existence of these portrayals but do not personally endorse them. Devine (1989) showed that under certain conditions knowledge of stereotypes is enough to influence processing. However, real-life experiences are often under cognitive control, but this does not mean that skin color doesn’t have an influence. For instance, Bargh, Chen, and Burrows (1996) found evidence to suggest that individuals can be unconsciously primed with images of Blacks and Whites that later influenced behaviors. Regardless of whether or not a person endorses a certain stereotype may not be enough to influence actions or thoughts when a prime activates an existing knowledge structure. Thus, a video game can prime stereotypes of African Americans (which may influence thoughts and behaviors) without an individual’s awareness.

If a video game can consistently prime stereotypes of African Americans then these knowledge structures may become more easily accessible. Overtime, these knowledge structures through repetition and recency may influence actions and thoughts in times of low self-regulation. According to Bandura (2002) individuals have the capability to self-regulate their beliefs and behaviors based upon societal standards.
Thus, people can self-regulate their behaviors according to societal beliefs of what are correct actions, although this may not always be the case. In the self-reflective process individuals have the ability to proactively observe other individuals behaviors for correct ways of thinking or can retroactively assess the fit between their behaviors and mismatches in thinking (Bandura).

Accordingly, individuals have the means to change thoughts or behaviors if they do not meet certain standards. The observation or modeling aspects require the extraction of relevant exemplars of that action, integrating that action with already existing standards, and producing new rules of behavior based upon new instances of behavior (Bandura, 2002). However, if the media, which may be seen as reflecting the values of society, display stereotypical images of African-Americans then it may become socially acceptable to also hold these beliefs. The consistency of such images in the media may lower individual’s conscious awareness to such stereotypes, but may not necessarily lower the ability to activate such knowledge structures when they are primed. This may create a viscous cycle whereby constantly viewing such images may lower individual’s negative responses to such stereotypes, which lowers individuals need to self-regulate such beliefs. Thus, video games may prime stereotypes of African Americans that may later influence decisions on interactions and behaviors toward those groups of individuals. Although, the influence of primed stereotypes on cognitions and behaviors is important, we need to first examine if an actual video game
may prime such associations. In order to understand how video games may prime stereotypes, one needs to understand the theoretical underpinnings of video game play outcomes.
CHAPTER 2

The General Aggression Model

The General Aggression model (GAM) has been the most invoked theoretical model to help explain and predict the effects associated with violent video game play (see Anderson and Bushman, 2002; Anderson and Dill, 2000; Anderson, Carnagey, Flanagan, Benjamin, Eubanks, & Valentine, 2004; Barlett, Harris, & Baldassaro, 2007; Bushman and Anderson, 2002; & Eastin, 2006). Although, the GAM has been heavily invoked in gaming research, it was originally developed to help explain the factors that influence human aggression in general. The GAM was developed by Anderson and Bushman and posits that situational and personal variables can mediate the effects of affect, cognition, and arousal on aggression. The GAM incorporates multiple theoretical perspectives in order to help explain the effects and causes of aggression. The model incorporates cognitive neo-association theory (Berkowitz, 1984, 1990), social cognitive theory (Bandura, 1977, 2002; Mischel, 1973), script theory (Anderson, 1983; Huesmann, 1986), and excitation transfer theory (Zillman, 1988). The general aggression model (GAM) benefits from these above mentioned theories by incorporating them into a unified model that helps to better predict responses to violent
According to Anderson et al. (2004) “It does so by noting that the enactment of aggression is based largely on knowledge structures, such as scripts or schemas, created by social learning processes” (p. 202). According to Anderson and Bushman (2002) the influence of violent media is based upon three processes: (a) situational and personal variables; (b) the cognitive, affective, and arousal routes that are influenced by these situational and personal variables; and (c) the outcomes associated with underlying appraisal processes. This allows the GAM to predict outcomes associated with violent media exposure by accounting for differences in personal variables (e.g., trait hostility or gender), situational variables (context and style of the depictions), and differences in individuals knowledge structures (e.g., beliefs, behavioral programs, & affective states) related to those depictions.

Furthermore Anderson and Bushman (2002) also incorporate the subtypes of knowledge structures that “are (a) perceptual schemata, which are used to identify phenomena as simple as everyday physical objects (chair, person) or as complex as social events (personal insult); (b) person schemata, which include beliefs about a particular person or groups of people; and (c) behavioral scripts, which contain information about how people behave under varying circumstances” (p. 33). Thus, knowledge structures help us to categorize and respond to media depictions by organizing information based upon past or observable experiences. In terms of person
schemata, racial representations in the media may impact individual’s beliefs about that
group of individuals. And if that group is portrayed to be violent or aggressive, then a
video game that contains those violent depictions is more likely to have an impact.

The GAM holds two distinct models of mediated aggression: the single-episode
model and a multiple-episode model. The single-episode model of aggression involves
inputs from personal factors (e.g., trait hostility) and situational factors (e.g., violent
video game play) that influence behavioral outcomes through present internal states
(Anderson et al., 2004). A persons present internal state is composed of affective,
cognitive, and arousal routes that interact with one another to influence thoughtful and
impulsive actions. The actions intern influence current social interactions, which
feedback into the process. Eastin (2006) suggested that personal factors (trait
aggression) in conjunction with violent video game play (situational factor) may prime
aggressive cognitions. Video game players are required to appraise situations and make
suitable actions in order to obtain a goal within that game (i.e., advancing a level or
beating a boss). Video games may often require players to use violent means in order to
obtain these goals (see Lachlan, Smith, and Tamborini, 2005; Smith, Lachlan, &
Tamborini, 2003). According to Eastin these decision processes influence cognitive
knowledge structures that influence behavioral reactions, which may generalize to real-
world situations. For instance, if a person is primed with aggressive thoughts or
emotions, then there is a greater likelihood they will interpret situations to be more
aggressive and hostile. Also, a person may already have cognitive knowledge structures related to the race of individuals. For instance, a person may be primed with stereotypes of African Americans through a video game that can influence their cognitive, affective, and behavioral responses to subsequent situations and stimuli.

Although, the GAM has been incorporated largely to explain short-term effects via the priming of aggressive scripts or perceptual schemata, it does also predict long-term effects (see the multiple-episode model). Anderson and Bushman (2002) mention that long-term effects involve the learning of knowledge structures that are developed over time through our day-to-day interactions with other individuals and the media. Thus, repeated exposure to violent video games may create new knowledge structures related to aggression or may distort our already existing knowledge structures. Also, repeated exposure increases the strength and complexity of these knowledge structures. According to Anderson et al. (2004) repeated exposure to violent video games could influence any of the subtypes of knowledge structures: aggressive beliefs & attitudes, aggressive perceptual schemata, aggressive expectations schemata, aggressive behavior scripts, or aggressive desensitization. The influence of these subtypes could be perceptual biases in responding to conflict situations or the development of an aggressive personality. This goes the same for primed racial representations of African Americans. Repeated exposure (continued video game playing) to video games that incorporate stereotypical images may form perceptual expectations of African
Americans.

The GAM and its predictions about aggression may add insights to the influence of mediated racial representations. The GAM predicts that repeated exposure to violent video games may prime aggressive knowledge structures (Anderson & Bushman, 2002). This might also be said of racial stereotypes. Repeated exposure to racial stereotypes (in particular African-Americans) in violent video games may further prime and create associations of Blacks to danger and violence. Overall, the implications are that individuals who play a violent video game with an avatar who is portrayed as Black and that portrayal is highly stereotypical should influence aggressive cognitions and affect more so than an equivalent White counterpart. Finally, these racial representations will also influence priming of racial stereotypes that could be elicited under certain conditions.

Thus, research should examine the effects of stereotypical portrayals of African-Americans in video games. Bryant and Davies (2006) suggest that video games require a large portion of individual’s attention and cognitive capacity. Players must constantly be cognitively processing what’s happening on the screen to react and avoid negative consequences associated with dying or losing points. However, this high cognitive processing means that other processing abilities are likely to be weakened. Thus, stereotypical information is not likely to be highly processed due to limited cognitive resources and may be processed in a peripheral or very shallow manner. This suggests
that in subsequent judgment tasks that participants are likely to fall back upon the primed stereotypes for appraisal processes rather than full use of their cognitive capacities because they are either too tired from game play or do not have enough motivation to effortfully process new incoming information. Furthermore, the game may have automatically primed these stereotypes without a player’s awareness because attention was focused upon another aspect of game play. However, in order to understand how the GAM can help explain the effects of mediated stereotypical images, one must understand how the GAM explains the effects of violent video games.

2.1 The GAM and Video Games

Bushman and Anderson (2002) examined whether or not violent video games could induce a hostile expectation bias. This hostile expectation bias is the likelihood that a person will expect a social situation to end in aggression. Bushman and Anderson describe it as the expectation that a person in a hypothetical social situation will respond with aggression to potential conflicts. According to that GAM short-term increases in aggression can prime aggressive cognitions and influence appraisal processes. Hence, the short-term priming of aggressive knowledge structures should influence hostile expectation biases. Short-term exposure to violent video game play may prime aggressive cognitions. The results supported these contentions in that individuals who played the violent video game were more likely to report aggressive responses from characters in potential conflict situations than individuals who played a non-violent
video game (Bushman & Anderson). Thus, participants were more likely to say that a character in a story would respond aggressively to a conflict situation (car accident) after playing a violent video game. Overall, “the study supports the General Aggression Model—based prediction that exposure to violent media can influence the amount of aggressive expectations that people conjure up in response to potential conflict situations” (Bushman & Anderson, p. 1684).

Anderson and Dill (2000) conducted both correlational and experimental studies in order to examine the effects of violent video game play on aggression-related variables. The researchers incorporated aspects from both of the GAM’s single-episode and multiple-episode models to explain and predict their findings. The correlational study examined the GAM’s predictions regarding long-term exposure to violent video games. Also, violent video game play is likely to lead to more aggressive perceptual biases in attitudes, beliefs, and behaviors (Anderson & Dill). It was predicted that increased violent video game exposure would be positively correlated with an aggressive personality, aggressive behaviors, and a negative world view. The researchers measured participants reported frequency of playing violent video games. In the predicted model it was expected that violent video game exposure would have a significant relationship with aggressive behaviors and a negative world view. The results showed that violent video game exposure was positively and significantly related to aggressive behaviors even when including competitor variables. Furthermore, there
was a significant interaction between aggressive personality and violent video game exposure to influence aggressive behaviors (Anderson & Dill). Individuals with higher aggressive personalities who reported playing more violent video games also reported higher occurrences of engaging in aggressive behaviors. Overall, the results support contentions that violent video games may be correlated with aggressive behaviors. Furthermore, the results showed that violent video game exposure does account for aggressive behaviors even when controlling for personal factors.

In order to test the short-term effects of violent video game play Anderson and Dill (2000) conducted an experiment examining the short-term effects of violent video game exposure on aggressive affect, aggressive cognitions, and aggressive behaviors. Participants played either a violent video game or non-violent video game and were measured afterward for aggressive affect via the state hostility scale (see Anderson, 1997) and aggressive cognitions, which were measured via a reading reaction time task, in which participants are asked to read aloud either aggressive or control words as fast as possible. Finally, aggressive behavior was measured via a competitive reaction time task, in which participants set the punishment levels (noise blasts) of their opponents (Anderson & Dill). This task has been widely used (see Bushman, 1995) and involves participants setting the punishment levels for an opponent in the form of noise blasts that result from pushing a button faster than the other person. However, if the participant loses then their opponent will set the punishment level. Anderson and Dill
operationalized aggressive behavior as the strength and length of the noise blasts that participants delivered to their opponent.

Laboratory sessions were conducted in three phases. Thus, participants played a video game and then completed the affective measure (phase 1), then played the game again for another 15 minutes and then completed the aggressive cognition measure (phase 2). Finally, a week later participants returned and played the game again and then competed in the reaction time task against another participant (Anderson & Dill, 2000). The results showed that participants who played the violent video game elicited higher aggressive accessibility and gave longer noise blasts than participants who played the non-violent video game. The results showed evidence that violent video games influenced aggressive thoughts and behaviors. Anderson and Dill support evidence that violent video games can influence aggression in the short-term through priming accessibility and may influence individuals long-term by creating aggressive scripts or schemas for future direction.

Bartholow et al. (2005) conducted similar research examining the effects violent video game exposure (VVE) through correlational and experimental studies. The researchers further tested the GAM research by looking for both short and long term effects associated with playing violent video games. According to Bartholow et al., "exposure to video game violence can serve as a proximate situational cause of aggression by influencing cognitive, affective, and/ or arousal variables, but it can also
serve as a distal cause by influencing the development of aggressive personality” (p. 1574). The results of a regression analysis showed that prior VVE was positively correlated with verbal and physical aggression, trait hostility, impulsivity, and antisociality, while it was negatively related to dimensions of trait empathy (Bartholow et al.).

However, unlike Anderson and Dill (2000), the researchers included prior VVE in their analysis along with the experimental manipulation (violent video game or non-violent video game). If an aggressive personality is developed through repeated violent media usage, then having individuals already used to these depictions play a violent video game should influence the way situational cues are processed. It was predicted that prior VVE would influence aggressive behaviors regardless of video game condition. Aggressive behaviors were measured via competitive reaction time task in which participants could set the punishment levels of their opponents (noise intensity & length). Thus, individuals who regularly play violent video games may have chronically accessible knowledge structures related to appraisal processes. This means that individuals high in VVE would deem their opponents actions as more hostile and thus react more aggressively towards that opponent regardless of video game condition. The results do suggest that participants high in VVE responded more aggressively in the competitive reaction time task regardless of video game condition (Bartholow et al., 2005). This finding suggests that repeated exposure to violent video games may
chronically prime aggressive knowledge structures even when situational cues (playing a violent video game) do not prime aggressive cognitions or affect (Bartholow et al.).

Kirsh, Olczak, and Mounts (2005) hypothesized that violent video games may influence individual’s information processing. Specifically, individuals primed with aggressive affect and cognitions should find it easier to process new information that is congruent with those aggressive knowledge structures. This also means non-congruent information will be harder to process, while congruent information will be harder to ignore (Kirsh et al.). The researchers invoked a Stroop task in order to test for possible information-processing biases from playing a violent video game or non-violent video game. It was hypothesized that individuals who played a violent video game would show a greater stroop effect (see Eckhardt & Cohen, 1997) than individuals who played the non-violent game (Kirsh et al.). The results supported the hypothesis: individuals who played the violent video game exhibited a greater stroop effect (Kirsh et al.). Thus, individuals who played the violent video game took longer to identify the colors of negatively valenced words than neutral words. It could be suggested that violent video game play primed aggressive constructs, which made it harder to ignore words that had an aggressive valence. Thus, concurrent research shows support for the GAM predictions and explanations of violent video game play.
2.2 Moving Beyond the GAM

The General Aggression Model has proven to adequately explain and predict the effects of violent video game content on cognitions, affect, and arousal related to aggression. However, research has begun to move beyond the GAM’s predictions to incorporate aspects of the video game itself besides the violent content that may influence the routes to aggression. For instance, many researchers have started to examine contextual features of the video games that may add insight to other processes (such as stereotyping & identification) that can influence outcomes predicted by the GAM. As mentioned previously researchers have started to examine aspects such as story narrative (Schneider et al., 2004), third-person vs. first-person perspectives (Farrar et al., 2006), gender (Eastin, 2006), and racial-representations (Eastin et al. 2009) with violent video games. These contextual features may be likely to influence outcomes beyond what has been predicted by the GAM in terms of aggression.

Schneider et al. (2004) examined the effects of including a story narrative with a first-person game on identification, presence, emotional experiences, motivation, and physiological arousal. According to Schneider et al. games of the earlier 80’s and 90’s did not include any complete narrative, merely violent acts with little justification. However, recent video games, regardless of content, have come to include very intricate story lines (see any of the Halo or Grand Theft Auto series video games). These games often focus upon a protagonist whose must complete various missions in order to
achieve a greater goal. The video games also focus upon a story narrative that involves numerous plot twists, character development, and a few explosions that often rivals block buster movies. The inclusion of narratives within video games may add to the impact these games have upon cognition and affect. Although, it is debated among scholars whether or not interpretational narratives exist within video games (see Kirkland, 2005), no one seems to disagree that this type of media genre does involve some aspects related to story telling. The inclusion of narratives within a video game may give players a sense of purpose when playing. Players may feel that they are justified in their actions because they can identify or empathize with their characters plight. In terms of racial representations this may enable game players to “live the stereotype” of their characters/avatars.

Story narratives may add a justified reason for performing violent actions besides advancing to the next level. If violent depictions in video games are portrayed as justified, then it is likely that individuals who regularly play these games may come to see violence in the real-world as justified and may disinhibit aggressive thoughts or behaviors towards others in real-world situations. Anderson and Dill (2000) mention that the GAM accounts for how stimuli affect both automatic and controlled appraisals of a situation. A situational variable (such as a video game) can influence outcomes related to these appraisal processes. According to the model, “revenge” is a controlled appraisal process (see Anderson & Dill, p. 773). If violent video games can prime
“revenge” against others within the game, then this may create a mental model for revenge that can be subsequently primed by other violent video games or other stimuli.

Schneider et al. (2004) also examined the extent to which participants identified with characters in a violent video game that included a story narrative compared to one that did not. Video games often allow individuals to either create or choose their own character. For instance, *Grand Theft Auto: San Andreas* allows players to buy clothes and dress their character any way they choose. Dill and Dill (1998) conducted an empirical literature review on violent video games and suggested that identification with video game characters may be greater than that of TV or movie characters because video games allow players to choose and personalize their characters. “In doing so, players may actually imagine being their chosen character, and may react emotionally to the aggressive actions of the character and the character’s opponent, thus activating in the individual a broad range of aggressive action tendencies” (Dill & Dill, p. 413).

The results of Schneider et al. (2004) show that participants who played a story-based video game (SBVG) compared to non-story based video game (NSVG) reported greater levels of identification with their game characters and felt more presence within that game. Although, the results did not show any difference between self-reported levels of arousal, the skin conductance measures did show that the SBVG elicited higher arousal than the NSVG. Finally, SBVG also elicited more positive emotional valence than the NSVG (Schneider et al.). It should be noted that all of the video games
were violent in nature, thus they required fighting or killing in order to achieve objectives. Although, not a direct or casual test of aggressive behaviors, the results do suggest that including a story narrative can increase identification and arousal to justified aggression and thus enhance the learning of aggressive scripts.

Farrar, Krcmar, and Nowak (2006) examined the differences in individuals’ responses to video games by manipulating contextual features related to the view (third-person versus first-person) and the representation of blood (on/off) in the game. Farrar et al. invoked a mental models perspective to understand how game features along with player perceptions influence game play outcomes. The mental models approach is similar to the approach of neo-associative networks. According to Roskos-Ewoldsen, Roskos-Ewoldsen, and Carpentier (2002) the mental models approach is a way to conceptualize semantic knowledge alongside situational experiences. The mental models approach to media priming can occur in two ways with the creation of a new mental model or the interpretation from an existing mental model from memory (Roskos-Ewoldsen et al.). If the media brings up an instance in which a person has no referent or exemplar then a new mental model will be created, which can be later activated if it is primed. However, if the media primes a different referent of an existing mental model, then the issue becomes how it is incorporated with that already existing mental model. This is more likely what occurs with racial representations. It is likely that most individuals will have had direct experience with a person who is African
American.

Thus, the situation is whether or not the mediated depiction is congruent or incongruent with the existing knowledge structure related to that individual or group. If the primed concept is congruent with that existing model then it will activate that mental model, which should influence behaviors or thoughts (Roskos-Ewoldsen et al., 2002). However, if the primed concept is incongruent then it may create a new mental model. Farrar et al. propose that frequent video game playing is likely to form accessible mental models of aggression and that features of the depictions within that video game are likely to affect subsequent interpretations. Furthermore, video games that incorporate racial representations may prime accessible mental models of that group of individuals, which may be likely to fit with already held perceptions.

The researchers found a large amount of supporting evidence, but only important findings related to violence research will be discussed. Participant’s who played the violent video game that included depictions of blood perceived that game to be gorier than the condition that did not display those depictions. The point of view and blood depictions did not have any effect of emotional hostility or verbal aggression. However, blood depictions were significantly related to increased physically aggressive intentions (Farrar et al., 2006). Thus participants who played the game with blood depictions reported greater intentions to aggress afterwards than participants who played the no blood condition. The blood manipulation did affect intentions to be
physically aggressive. Farrar et al. suggests that “In a video game, blood itself is a kind of reward in that it reminds the player of success. In the mental models approach, then, blood is synonymous with reward – not consequences as it may be in film violence” (p. 401).

The above mentioned research suggests that contextual and content features of violent video games can significantly contribute to aggressive outcomes beyond simply looking at violent content. Different demographics of avatar (character) representations are also likely to be important moderators of the aggressive outcomes. If African Americans are linked to stereotypes portraying them as violent and aggressive (see Devine, 1989), then a video game that depicts them in this manner is likely to increase aggressive cognitions and affect. Although, race is an important aspect, research conducted on gender representations may add insight to this discussion. For instance, Eastin (2006) conducted three experiments in order to examine the effects of user and opponent gender representations on aggressive thoughts from violent video game play. Female gender representations in video games may be likely to influence outcomes associated with violent video game play. Therefore, the three experiments were all conducted with female samples.

The first experiment manipulated avatar gender and opponent gender (all participants were told that they were playing a CPU controlled opponent). The results of the first experiment indicated that aggressive thoughts increased, regardless of avatar
gender, when the avatar opponent’s gender was male (Eastin, 2006). Thus, females who played against a male opponent had higher aggressive thoughts compared to those who played against a female opponent. The second study held the same manipulation as the first (avatar gender), but altered whether or not the participants were playing against a human or CPU controlled avatar. A female confederate posed as the human opponent and all of the opponent avatar representations, whether the human or CPU were female. The results showed that playing as a same-sex avatar against a human opponent increased aggressive thoughts. However, when playing as a male-avatar against a CPU controlled female-avatar aggressive thoughts were high, but when playing against a human (female) controlled opponent aggressive thoughts were low (Eastin). Study three examined the influence of opponent type (human vs. CPU) and opponent gender (male vs. female) on aggressive thoughts. The results of the third experiment suggest that human opponents and male opponents increased aggressive thoughts more than CPU and female opponents. Overall, these results suggest that for females, opponent gender representations influenced aggressive thoughts.

This research suggests that avatar and opponent representations may influence post game play outcomes associated with aggression. Gender representations provide an excellent starting point towards the study of character/avatar variables that may influence game play outcomes. In particular racial representations of African Americans in video games may influence post game play outcomes associated with stereotyping
and aggression. The inclusion of race within video games adds a different variable that has not been typically explored.
Racial Representations and Video Games

Although, not a lot of research has been conducted in this area, there are some researchers who have examined the influence that racial-representations within a video game may have upon post-game play outcomes. For instance, it can be seen that a few psychologists have examined how race of a character influences shoot/don’t shoot decisions within a video game (see Correll et al., 2002). Eastin, Appiah, and Cicchirillo (2009) examined the influence of not only avatar race, but also opponent race in influencing outcomes of aggression. In order to understand how these representations may influence outcomes related to stereotyping, the relevant literature that has been examined needs to be reviewed.

Eastin et al. (2009) examined the influence of avatar race and opponent race on post game play outcomes associated with aggressive thoughts and identification. It was hypothesized that Black participants would report higher levels of identification when their character race matched their own. However, it was expected that no such effects would occur for white participants because racial identity is not a strong concept for Whites (Phinney, 1992). Participants were randomly assigned to play in one of four
conditions pairing either a White or Black avatar with either a White or Black CPU controlled opponent. Thus, there was a White-avatar/White-opponent condition, a Black-avatar/Black-opponent condition, a White-avatar/Black-opponent condition, and a Black-avatar/White-opponent condition.

The results partially supported the hypothesis. Participants regardless of race identified more with the Black characters than the White characters (Eastin et al., 2009). However, these results were unexpected for White participants, who were not supposed to be influenced by race of the characters. Theoretically, “Cultural Voyeurism” (Appiah, 2004a) was invoked in order to explain the findings. This is something Appiah (2004a) defines as “the process by which a White viewer seeks knowledge about and gratification from Black characters by viewing them by use of a specific medium” (p. 336). Thus similar to past research of Appiah (2001), White participants may stereotype Black media representations as cool or athletic, hence identifying with these characters on styles and preferences that are linked to African American culture. The results also showed that White participants had more aggressive thoughts when playing as Black-avatar than when playing as White-avatar (Eastin et al.). For White participants, the results could be attributed to a combination of identification with the Black-avatar and an invocation of a racial stereotype.

Although, Blacks did not display this effect, they did report more aggressive thoughts when playing against a White opponent compared to a Black opponent. For
Black participants, increases in aggression may have been associated with inter-racial competition and frustration from years of oppression and segregation. Devine and Elliot (1995) have shown research that Blacks are often stereotyped to be aggressive, athletic, and criminal-like. Thus, according to Eastin et al. there is reason to believe that video games may have primed racial stereotypes among White participants. In order to understand the influence of racial primes within video games one should examine the influence that these representations have during actual video game play in terms of decisions.

For instance, Correll, Park, Wittenbrink, and Judd (2002) examined shoot/don’t shoot decisions in a video game based upon the target’s race. The researchers created a video game, using a software package, that showed a varied number of participants (blacks and whites) either holding guns or ambiguous objects like a wallet or cell phone in different locations (train station, city sidewalks, restaurants, etc…). The object of the game is to shoot individuals with guns, as they pose a threat, and not shoot individuals without guns (e.g., holding ambiguous objects). Furthermore, participants are asked to respond as quickly as possible. In the first study, participants were asked to shoot individuals who were holding a gun compared to not shoot individuals who were not holding a gun. The results showed that participants made fewer errors, however when they did make errors they were more likely to shoot unarmed targets who were African-American than those who were White (Correll et al.).
In the second study, participants were told that they would be paid for their performance and that they had a shorter response time than in the first study. The results indicated that when the participants failed to shoot an armed target it was more likely to be a White target than an African-American target (Correll et al., 2002). The third study invoked Devine’s concepts of mere knowledge and personal beliefs of racial stereotypes. The results from study three suggest that mere knowledge of a racial stereotype was enough to influence shooting biases similar to the results found in studies one and two (Correll et al.). The fourth study found evidence to suggest that these biases were similar across samples of both Caucasian and African-American participants. According to Correll et al. “participants may use the stereotypic association between the social category, African American, and concepts like violence or danger as a schema to help interpret ambiguous behavior on the part of any given African-American” (p. 1320). These results were shown during actual game play, thus individuals made these decisions while playing the video game. The results of Eastin et al. (2009) suggest that race played a factor in individual’s affect prior to playing a video game that incorporated African American characters. It could be suggested that the results of both research studies show that the inclusion of racial representations within a video game has an impact during and after game play.

Furthermore, the results show that even across samples of both Caucasians and African-Americans that simply knowing of these stereotypical associations will
influence individual’s subsequent judgments. The fact that this occurred across both samples has implications for system justification. According to Jost and Banaji (1994) system justification is defined as “the process by which existing social arrangements are legitimized, even at the expense of personal and group interest” (p.2). Thus, individuals who belong to certain racial and ethnic minorities uphold negative associations of their own group. According to Livingston (2002) this occurs because Blacks are aware of negative stereotypes assigned to their racial category, which is likely to influence their own views about themselves and their racial group. This is likely to influence more favorable attitudes towards out-group members than their own in-group members. Livingston found evidence to suggest that Blacks may hold a positive in-group bias explicitly, while favoring the out-group implicitly. Thus, there are differences in implicit and explicit measures. Ashburn-Nardo, Knowles, Monteith (2003) examined Blacks scores on an Implicit Association Test (IAT) and preference for a Black or White work partner. Participants were asked to choose a work partner based upon a demographics sheet whom they thought they could work with the best. Participants were also asked to complete a racial IAT for preferences to Whites or Blacks. The results suggested that Blacks who had a low implicit preference for their own in-group were more likely to select an out-group member (White) for their partner. However, Eastin et al. (2009) do mention that caution should be warranted when using system justification theory as research has shown mixed support among the findings.
Finally, it should also be mentioned that although an Implicit Association Test (IAT) is being implemented it is only being used to operationalize whether or not a video game can prime stereotypes of African Americans and not specifically attitudes or prejudice towards ingroup or outgroup members. According to recent criticisms of IAT’s made by Brendl, Markman, and Messner (2001) the IAT is not a direct or even significant test of implicit prejudice against a certain group because the results can be left to interpretation. Thus, it may simply be that the IAT is a test of a prime. Thus, the IAT in the following research is being used a test of prime, specifically whether or not a video game with stereotypical images of African Americans can prime greater responding later to images and words.

Although, the research of Correll and colleagues (2002, 2007) was not a direct test of a whether or not a video game can prime racial stereotypes it did offer insights into how these images might influence game play decisions. The results of Correll and colleagues has important implications for how we respond to stereotypical images. This research is based upon in incident in which police officers fatally shot a person meeting the description of a rape suspect after he had reached for his wallet, which officers assumed he was reaching for a weapon. The main cause for concern among community members was this person was Black and the question was raised about whether this incident would have happened had the person been White? The implications in terms of non-police officers is that individuals on daily basis are likely to interact with people
from different ethnic and racial backgrounds. If video games and other media representations of African Americans are highly stereotypical then it may likely influence subsequent responding and interacting to individuals of that group.

However, the results of this Correll’s research are not necessarily generalizable to commercially produced video games that incorporate stereotypical images of minorities. The game was not commercially produced, which meant it lacked the technological innovation and adaptations of video games produced for market. Thus, it was not very similar to your Grand Thefts or Halos in terms of quality or development. Finally, it also lacked a clear narrative that as mentioned previously may likely to add to an individuals overall experience of playing that video game. Eastin et al. (2009) did incorporate a commercially produced video game and manipulated character and opponent race and found effects based upon the race of avatar on aggressive thoughts and identification. Although, the research conducted by Eastin et al. and Correll et al. (2002) has limitations, both provide evidence that video games that include racial representations may prime stereotypes of African-Americans.

### 3.1 Priming and Stereotypes

In order to understand how a violent video game may prime stereotypes of African-Americans, it needs to be understood how stereotypes can be primed in general. Media theories on priming, especially mental models approaches, offer valuable insights into how this process occurs. Therefore, this section will discuss the relevant
research on media priming and stereotypes. Current and past examinations will be discussed in order to understand how racial-representations within a video game can prime stereotypes of groups of individuals. Furthermore, how those processes may be influenced under controlled and non-controlled mental-effort.

As mentioned previously the mental models approach to media priming has been invoked by a few researchers to help explain the effects of video game play (Farrar et al., 2006). Roskos-Ewoldsen et al. (2002) conceptualized the mental models approach as a way to explain the priming of concepts along side knowledge structures that already exist within a person’s semantic knowledge through previous creation or situational experiences. This is based upon whether or not media images bring up new images or knowledge to be stored for later retrieval or if it is congruent or non-congruent with already held mental models. This is particularly interesting when it comes to media priming of stereotypes. Stereotypes are based upon some inclusion within a particular group or category (i.e., female, Asian, or doctor).

According to Fiske, Lin, and Neurberg (1999) individuals can process information either through category-based distinctions or upon individual attributes. Individual attributes are likely to be attributed to systematic processing that requires effortful processing and storage of information related to that person. However, category-based processing relies on more heuristic processes and categorizes information based upon shared qualities or characteristics. According to Fiske et al.
“People categorize others in part because doing so provides a wealth of information at little cognitive cost” (p. 236). However, individuals will often use both types of information when forming impressions of other individuals. What is important to understand here is that category-based information may be based upon stereotype-dominating impressions that under certain cognitive instances will influence individual’s judgments. Thus, stereotypes may be mental models of groups of individuals that can be retrieved from memory with little cognitive effort.

It was hypothesized that violent video games with racial representations may be likely to prime stereotypes of African-Americans as aggressive or hostile. According to the mental models approach the less situational experience and more stereotype congruent information that is presented to these individuals the more likely it is that it will activate that mental model, which should influence behaviors or thoughts (Roskos-Ewoldsen et al., 2002). Bodenhausen, Macrae, and Sherman (1999) suggest that a class or category of heuristic cues that influence judgments is stereotypes. Thus, stereotyping is equated to processing information based upon categorical information rather than individuating information. “By relying on stereotypes to form impressions or judgments of others, people rely on precomputed, preorganized frameworks that provide a potential rich set of knowledge at the cost of relatively little effort” (Bodenhausen et al., p. 276). Other areas such as social psychology have investigated the activation of stereotypes through priming tasks.
Devine (1989) examined the influence of personal beliefs and knowledge of stereotypes in automatic and controlled processes of stereotype activation. Devine acknowledged that individuals may have knowledge about cultural stereotypes, however this knowledge may or may not be congruent with their personal beliefs about that stereotype. Thus, just because a person has knowledge about a cultural stereotype does not mean that they endorse such beliefs. Individuals may know of these cultural stereotypes, but do not endorse them because they know those beliefs to be false. Also, individuals may have more experience with a wider range of these individuals that do not necessarily fit with the stereotype associated with that group. According to Bandura (2002) we have the ability to self-regulate, which means that individuals have the skills to control the expression of stereotypes. However, instances in which there is low cognitive self-regulation or that the stereotype seems to be apart of a social value will likely inhibit the control of that expression.

Implications are that under controlled processes (without hindrances) individuals who are low in prejudiced attitudes should be less likely to display stereotypical thoughts compared to individuals who are high in prejudiced attitudes. Three studies were conducted in order to examine if 1) knowledge of stereotypes exists across low and high prejudice individuals, 2) priming influences automatic stereotyping for both low and high prejudice individuals, 3) under consciousness awareness both low and high prejudice individuals would invoke stereotypes (Devine, 1989). The first study
simply asked participants to list social stereotypes of blacks without making any reference to whether or not individuals personally endorsed such beliefs. Participants were also assessed for their level of prejudiced attitudes (this was done for each of three studies). The results showed that both high and low prejudiced participants listed stereotypical traits to blacks as lazy, poor, athletic, aggressive, hostile, and criminal-like (Devine).

However, this task was relatively controlled, so the second study attempted to examine unconscious priming of racial stereotyping among low and high prejudice individuals. The second experiment primed participants with stereotypical words related to Blacks through an ambiguous word location task. It was hypothesized that because blacks are stereotyped as being hostile or aggressive, that racial priming of Blacks would influence the subsequent ratings of hostile behaviors of a race-unspecified target. The results showed that automatic stereotyping was strong for both low and high prejudice individuals (Devine, 1989). Thus, individuals primed with Black words (e.g., negro) were more likely to evaluate the traits of the race-unspecified target as hostile than participants primed with neutral words. Finally, the third experiment was interested in examining the controlled processes of both low and high prejudice individuals by asking them to list their thoughts about Black Americans. Devine “provided evidence that controlled processes can inhibit the effects of automatic processing when the implications of such processing compete with goals to establish or maintain a
nonprejudiced identity” (p. 15). Thus, when participants were asked to think about characteristics of African-Americans, those individuals who were low in prejudice attitudes listed more positively valenced thoughts compared to those individuals who were high in prejudice attitudes.

Bargh, Chen, and Burrows (1996) conducted and experiment (experiment 3) examining the effect of automatic activation of stereotypes related to African-Americans. Participants were subliminally primed with pictures of either African-American or Caucasian faces during a computerized task, which later had to be restarted (eliciting frustration). The results showed that participants subliminally primed with the African-American face were more likely to behave in a hostile fashion than individuals primed with a Caucasian face (Bargh, et al.). Furthermore, in another experiment (experiment 2) participants were primed with elderly stereotypic words in a scramble sentence task. The results showed that participants primed with elderly words walked slower down a hallway than participants in the control condition. Overall, the results further suggest that priming of stereotypes may occur unconsciously and even influence behavior in the case of the elderly prime. The implications are that stereotypes can be activated unconsciously and influence decision processes. Thus, video games may have the ability to unconsciously activate stereotypes of African Americans, which may influence post game play outcomes associated with aggression and implicit associations.
As mentioned previously the GAM proposes that playing violent video games may affect short term processes related to the priming of aggressive scripts or thoughts. However, video games may also prime racial stereotypes. As mentioned previously video games are starting to incorporate more diverse characters. A majority of these characters are African-Americans who are sometimes portrayed stereotypically (Marriot). Television research has found evidence that racial representations do influence outcomes. For instance, Mastro (2003) examined the effects of stereotypical television portrayals of racial minorities on intergroup comparisons and self-esteem. Television often can create awareness or make salient these social categories by portraying racial minorities. The implications are that television messages are likely to prime in-group and out-group distinctions, these distinctions become especially damaging when the televised messages are stereotypical of racial minorities. Video games may be likely to prime similar out-group and in-group distinctions of stereotyped minorities.

According to research by Devine (1989) and Devine and Elliot (1995) common stereotypes of African-Americans listed by participants were aggressive, ignorant, musical, athletic, criminal, loud, and hostile to name a few. These stereotypes are likely to influence decisions and if portrayed through a medium might automatically activate related stereotypes, which influence subsequent judgments and thoughts. Research conducted by Payne (2006) and Payne, Lambert, and Jacoby (2002) found evidence to
suggest that simple racial cues are likely to influence subsequent judgments related to identifying an object. The researchers examined what is known as weapons-bias, in which the participant’s objective is to correctly identify an object as a tool or gun in a response task. However, Payne manipulated a priming task before hand by showing participants either White or Black faces for a few brief seconds and then asked to identify the objects. African-Americans are often stereotyped to be related to danger or violence; hence a primed stereotype would be to identify a gun after seeing a Black face regardless of whether or not that identification was correct. The researchers also manipulated the amount of time individuals had to respond to the identification task. The results showed that under no-time constraints that participants were relatively correct in identifying either a tool or gun. However, they were quicker to correctly identify a gun after seeing a Black face than a White face (Payne).

This research supports contentions that even when individuals have ample time to respond that primed stereotypes may influence judgments. Even more alarming is the fact that individuals only saw either the White or Black face for only a few seconds. Individuals who play video games usually play longer than for a few seconds. For instance, Sherry and Lucas (2003) found evidence to suggest that video gamers spend on average about 8 hours per week playing video games. Thus, increasing the chances that these associations are frequently categorized within that individuals knowledge structures and subsequent play constantly brings those thoughts into the forefront of an
individuals mind. Furthermore, stereotypical depictions are also likely to influence these aggressive outcomes. Racial representations in video games may have the effect of not only priming aggressive cognitions or affect, but also priming racial stereotypes in and of themselves. A few researchers have even found evidence to support contentions that racial representations in video games may influence post-game play outcomes (see Correll et al. 2002, 2007; & Eastin et al., 2009).

Individuals who play a violent video game with racial representations portrayed in a stereotypical way maybe more likely to be primed with those associations than individuals who play a similar game with no-stereotypical depictions. A violent video game with stereotypical representations may automatically activate racial stereotypes without participant’s conscious awareness. Thus, individuals may implicitly express these cognitions. Therefore it was hypothesized that:

H1: Individuals who play a violent video game with stereotypical racial-representations are more likely to exhibit implicit stereotypical associations than individuals who play a violent video game with non-stereotypical depictions.

As previously mentioned a stereotypical association of African-Americans is that of being aggressive and violent (Devine & Elliot, 1995). Research conducted by Eastin et al. (2009) even showed that participants who played as a Black avatar had higher aggressive thoughts than individuals who played as a White avatar. Thus, violence and aggression are stereotypical associations of African-Americans. Video
games that incorporate violent interactions with racial representations maybe likely to prime stereotypes already linking African-Americans with violence. Short-term exposure to violent video game play may prime aggressive cognitions which in turn might influence individual’s subsequent responses to story stems assessing how a person would respond to a potential conflict situation. Also, violent video games may prime aggressive affect. Thus, violent video game play that incorporates stereotypes congruent with minority perpetrators as violent and aggressive may be more likely to prime aggressive cognitions and affect. Based on the following research it was predicted that:

H2: Individuals who play a violent video game with stereotypical racial-representations will be more likely to report higher aggressive thoughts than individuals who play a violent video game with non-stereotypical depictions.

H3: Individuals who play a violent video game with stereotypical racial-representations will be more likely to report higher aggressive affect than individuals who play a violent video game with non-stereotypical depictions.

3.2 Racial Representations and Identification

Appiah (2001, 2003, 2004a) conducted a string of studies to examine the effects of racial representations in advertisements. However, one needs to understand how the psychological mechanisms of race, identity, and identification would likely influence these results. Two common social psychology processes have been identified by Appiah
to help explain how these representations might influence audiences: Identification theory and Distinctiveness theory.

Kelman’s (1961) identification theory states that individuals will assess their level of similarity with a source and make subsequent judgments based upon the level of that similarity. Basow and Howe (1980) suggested that identification with role-models may be based upon the perceived similarities between that person and the role model. Feilitzen and Linné (1975) proposed that identification with television characters is largely based upon the level of similarity to those media characters, something they later refer to as similarity identification. Although, other researchers (Cohen, 2001) have offered conceptually different definitions of identification, similarity does seem to play a role in the level of and amount of identification individuals have with media characters. For instance, Feick and Higie (1992) examined the influence of source similarity and experience on evaluations of product endorsers and attitudes towards a product. Overall the results suggest that source similarity had a greater influence on products that were high in varied tastes and preferences (i.e., night clubs, restaurants, hair salons, interior decorators) (Feick & Higie). Thus, individuals will focus upon source similarities when evaluating products based upon differences in styles and preferences.

3.3 Identification Theory and Whites

Race of character is salient feature that may be invoked when evaluating and
advertisement or television show. For instance, Phinney (1992) found evidence to suggest that whites consistently scored lower on an ethnic identity measure than members of ethnic minorities. Ethnic Identification is a sense of identification with a particular ethnic group to which a person belongs (Phinney). However, different individuals may have differing levels of identification to their particular ethnic or racial group. As previously mentioned white adolescents did not describe themselves in terms of their ethnic category, but relied upon other distinctions (Phinney). Thus, for whites ethnic identification to being Caucasian is not an important describable characteristic. In fact research conducted by Appiah suggests that whites are more likely to identify with media depictions of blacks or other racial minorities. Appiah (2001) examined the effects of cultural cues and race of characters in influencing advertising effects associated with identification, perceptions of targetedness, and overall evaluations of advertisements. These race effects were tested across a large sample of Black, White, Hispanic, and Asian American adolescents. The results provided evidence that white adolescents actually identified more with black characters and were more favorable towards those advertisements than white characters ads. Thus, these adolescents found another dimension other than source similarity to identify with the media characters. Appiah mentions that “For White, Hispanic, and Asian American teenagers, the simple presence of Black models in ads may invoke particular race-specific stereotypes that characterize Blacks as urban, hip, cool, musical, athletic, and trend setters, all of which
are highly desirable among youth” (p. 44).

3.4 Identification Theory and Blacks

However, African Americans are more likely to describe themselves in terms of their ethnic identity (Phinney, 1992). For Blacks being part of a numeric minority is very distinctive and they often make judgments based upon source characteristics such as race (Appiah, 2007). Appiah (2004b) examined the effect that ethnic identification had in mediating Black participant’s perceptions of race-targeted websites. The results showed that Blacks with stronger ethnic identities responded more positively to Black targeted websites than White targeted websites (Appiah, 2004b). The strength of ethnic identification may have important influences upon attitudes and behaviors. Individuals with strong ethnic identities may hold attitudes and behaviors that are consistent with those core cultural values, which in turn should affect preferences for media characters that hold similar cultural values (Appiah, 2004b). However, individuals with weak ethnic identities will be more likely to hold attitudes and behaviors that are similar to the dominant cultures values. The overall result is that media that targets individuals of a particular culture will have a stronger impact on individuals who have a strong ethnic identification with that culture. Although, it is expected that individuals with weak ethnic identities will identify more with the dominant culture this may not always be the case (Appiah, 2001, mentioned above).

It could be suggested that Ethnic Identify may influence individuals processing
of media stereotypes. For instance, individuals who score high on Ethnic Identity may be acutely aware of media presentations of stereotypes of their ethnic group, which may make them highly accessible and therefore easily primed. However, it could be suggested that individuals who do not score high on ethnic identity may be more likely to believe in such stereotypes because of a lack of solidarity with their ethnic group, which may influence the accessibility of such a prime.

For blacks it may be source similarity that elicits the strongest identification and favorability towards the advertisement or television character. That similarity may be based upon a salient feature, which is likely to be skin color among blacks. Research has shown that blacks have better recall for black characters on television (Appiah, 2002) and that blacks identify more with black characters in testimonial advertisements (Appiah, 2007). For whites the strongest similarities may be preferences, styles, or even socio-economic status. The research suggests that white and black adolescents use different underlying processes to evaluate source characteristics in advertisements. To understand why these differences might exist between whites and blacks one needs to examine distinctiveness theory.
3.5 Distinctiveness theory

Distinctiveness theory may add insights into how White and Blacks may be affected by racial primes in a video game. According to McGuire, McGuire, Child, & Fujioka (1978) distinctiveness theory states that an individual’s ethnicity is a self-concept that may be highly salient when in an ethnically diverse population. If an individual is interacting with someone of a different race or gender, then their own race or gender may become more salient to their self-concept. The theory furthermore postulates that members of numerical minorities (e.g., African-American, left-handed, red-headed) will be more salient of their distinct features than individuals of the numerical majority (McGuire et al.). For majority members race is something that is not important or salient because of the vast numerical representations presented to them daily. However, for minority members representations are not as widely presented and any representation of race or ethnicity is likely to prime the salience of that distinctiveness. Phinney (1992) has shown evidence that race will not become a salient feature for whites, until they are in the numeric minority. A video game that incorporates a high number of African American representations may be likely to prime distinctions related to race among White individuals.

Vignoles, Chryssochoou, and Breakwell (2000) have incorporated social identity theory, self-categorization theory, and even optimal distinctiveness theory into a unified whole model known as the distinctiveness principle. Distinctiveness principle holds that
identities change in situations depending upon the level of cognitive and social distinctions. Thus, individuals depending upon their focus and the situation may strive for conformity of a position, may stress individuation, or may simply withdraw or separate themselves from that situation (Vignoles et al.). Finally, these distinctions will likely exist across cultures, but are likely to vary in accessibility and availability depending upon the culture and context (Vignoles et al.). Mediated representations may influence the level of the cognitive or social distinctions depending upon the context and depictions of the medium. For instance, a televised sitcom show about 7 White friends, is likely to create a need for conformity among white viewers, but may create a need for non-conformity among black viewers. However, as we have seen white audiences are likely to identify upon characteristics other than race. Thus, in the televised sitcom, white viewers would likely conform to the roles, preferences, or styles of individual characters. Race representations in video games may create different levels of distinctiveness depending on the context of the game. For instance, a game with a large proportion of Black characters is likely to bring about different levels of distinctiveness among white and black players.

Research conducted by Eastin et al. (2009) found that both blacks and whites identified with black avatars (characters) in a first-person shooter game. Furthermore, research has shown that both blacks and whites readily identify with black media characters rather than white media characters (Appiah, 2004a). Overall, the results show
that both blacks and whites are more likely to identify with African American characters, but for different reasons. For white individuals (especially younger individuals) the process relates more to identifiable stereotypes of African-Americans as cool or hip, which are characteristics that highly desirable. However, for black individuals the process relates more to identifying with individuals who are similar to themselves in terms of ethnicity. Therefore it was hypothesized that:

H4: Both black and white participants will be more likely to identify with the lead character in the violent video game with stereotypical racial-representations, than individuals who play a violent video game with non-stereotypical depictions.

Also, it was mentioned that African-Americans are more likely to score higher on levels of ethnic identification than whites/Caucasians. However, it is not specifically known to what extent that level of ethnic identity might influence identification with a video game character.

RQ1: Does Ethnic Identification moderate the relationship between African-American participants and level of character identification?

3.6 Covariates

Finally, there may be certain variables related to prior video game play experience and experience with African-American media representations that are likely to influence outcomes related to the implicit expression of primed stereotypes. For
instance, the mental models approach to media priming suggests that individuals incorporate new knowledge with already existing structures. However, it is not known to what extent that more experience with video games or African-American media representations influence implicit stereotypical associations of African-Americans.

RQ2: To what extent does past video game play experience influence implicit priming of stereotypes?

RQ3: Does valence of personal experience with African-Americans & perceptions of media portrayals of African-Americans influence the implicit priming of stereotypes?

3.7 Hypothesis Summary

This study examines the effect of playing a violent video game with stereotypical racial-representations on implicit associations (H1), aggressive thoughts (H2), and aggressive affect (H3). It also examined whether or not race of one’s character can influence perceptions of similarity and identification (H4). Furthermore, whether or not ethnic identification can influence the level of character identification (RQ1). Finally, do variables related to past game play experience (RQ2), valence of personal experiences with African-Americans, and perceptions of media portrayals of African-Americans influence implicit associations (RQ3).
CHAPTER 4

Methods

4.1 Participants

Data was gathered from 254 undergraduate students (111 Blacks and 143 Whites) from a large Midwestern university. Participants were recruited from courses in the School of Communication and from the Office of Minority Affairs on campus. Forty-eight percent were male and fifty-two percent were female and their age ranged from 18 to 45 ($Md = 21$, $SD = 3.92$). Respondents were offered either extra course credit or $10 to participate in the study. In the questionnaire, participants were given a list of racial and ethnic groups from which to choose. Only participants who identified as either “Black” or “White” were included in the analysis.

4.2 Procedure

4.2.1 Pilot Study. In order to control for differences between the video games a short pre-test was conducted a quarter before the actual experiment. Both video games were pretested for differences in the level of enjoyment and positive affect. Participants ($N = 58$) were required to play one of the video games for approximately 20 minutes then rate them on factors related to excitement, enjoyment, difficulty, frustration, and violence (see figure 1). The measures assessing attitudes toward the video game and player’s character were assessed using 11, 7-point semantic differential scales ranging:
boring/interesting, bad/good, negative/positive, useless/useful, worthless/valuable, poor/outstanding, not for me/for me, weak/strong, not appealing/appealing, not attractive/attractive, and not likable/likable. The following measures have been used in past research to assess attitudes towards characters (Appiah, 2001, 2003; Bush, Hair, & Solomon, 1979; Deshpande & Stayman, 1994; Green, 1999). The measures assessing participant’s levels of difficulty and frustration with the video game along with how violent they thought the game to be were rated on 7-point semantic differential scales ranging from: easy/difficult, not frustrating/frustrating, no violent content/very violent content, no violent graphics/very violent graphics (Mahood, 2007). The results of this analysis (see results section) did show some significant difference that may be based upon participants gender/sex.

4.3 Main Experiment

The study used a 2 (Avatar Race) by × 2 (Participant Race) experimental design (see table 1). Participants were randomly assigned to either a violent video game with a lead black character (Grand Theft Auto: San Andreas) or a violent video game with a lead white character (Grand Theft Auto III). Please see table 2 for a cross tabulation of participant race x gender for condition. The two games are relatively similar to one another with exception of the race of the lead character. Both video games were developed by Rockstar Games and have the exact same game play control. Even though these video games were different versions in the Grand Theft Auto series, they’re story
lines did overlap. For instance, in one scene from *Grand Theft Auto: San Andreas* you street race against the main protagonist from *Grand Theft Auto: III*. Thus, even though these are different video games they are very similar in terms of story line and actual video game play. Both portray low level criminals who must work their way up the ranks. Both of the *Grand Theft Auto* games are relatively violent and rated for more mature audiences because of this violent content. The violent video game without racial-representations (*Grand Theft Auto III*) includes little to no characters of race. Although, *Grand Theft Auto III* does include a few characters of race at certain points in the game, the participants played the video game at a point in the game in which these characters have not yet been introduced. However, the violent video game with racial-representations (*Grand Theft Auto: San Andreas*) is explicitly laden with stereotypical representations. These racial representations are common throughout the entire game. Both games are a third-person shooter perspective, which means the view from the player’s perspective is over the shoulder of their avatar or character. Thus, the angle is set at just a few steps behind the character. This allows the player to view their entire character/avatar from head to toe. Both games were played on PlayStation 2 gaming consoles. Each video game was played in one of four single isolated rooms on a LCD monitor. Participants reported to the lab and completed the pre-test measures (see figure 2).

After completing the pre-tests participants were randomly assigned to one of the
four rooms and asked to wait patiently while the experimenter instructed each person individually. The experimenter instructed participants on how to control their characters movement, how the weapons worked, and then asked participants to look at the mission and story line sheets (see figures 3 & 4). If there were no questions participants were asked to play the video game for fifteen minutes. Following exposure to one of the video games participants completed the affective measures (see figure 5), a measure of implicit stereotypes, and then the aggressive cognition scenarios (see figure 6). Participants were then thanked for their participation and debriefed about the true nature of the study.

4.4 Measures

4.4.1 Covariates. As mentioned in the pilot study gender seems to be a covariate that may influence effects of aggression upon participants and therefore will be included within all analyses (see Bartholow & Anderson, 2002). The Buss and Perry (1992) Aggression questionnaire was used as a measure of Trait Hostility and was included as a covariate in all analyses related to aggression. The scale is composed of four sub-dimensions related to physical aggression ($M = 2.95, SD = 1.15, \alpha = .85$), verbal aggression ($M = 3.58, SD = 1.17, \alpha = .79$), anger ($M = 2.68, SD = .99, \alpha = .81$), and hostility ($M = 2.93, SD = 1.10, \alpha = .82$). However, in an effort to protect degrees of freedom this item will be treated as a single covariate as an overall measure of individual’s trait hostility ($M = 2.99, SD = .91, \alpha = .93$). In order to assess if participants
were regular video game players, 2-items from Anderson and Dill’s (2000) Video Game Questionnaire were utilized. Participants were asked how many hours and minutes they play video games (i.e., console, online, handheld, etc.) during the week and on the weekend ($M = 2.53, SD = 3.32$). This measure did not show any significant differences between black and white participants in terms of amount of video game play $F(1, 254) = .310$, n.s.

Also, in order to examine a possible moderation effect of identification with character ethnic identity was measured using Phinney’s (1992) multigroup measure of Ethnic Identity. The scale contains five items assessing how much individuals feel they belong to their own ethnic group ($M = 6.24, SD = 1.06, \alpha = .91$). For instance, an example item asks participants to rate on a 7-point semantic differential scale ranging from strongly agree to strongly disagree “I have a lot of pride in my ethnic group and its accomplishments”. Participants were asked 2-items ($M = 5.33, SD = 1.26, \alpha = .58$) assessing how close and pleasant they thought their interactions have been with African-Americans (Fujioka, 2005). Participants were also asked to rate how negative (very negative to very positive) they thought African-Americans were treated within TV news, drama, sitcoms, movies and in newspapers ($M = 3.65, SD = 1.00, \alpha = .84$). Participants were also asked to rate how accurate (not accurate to very accurate) they thought African-Americans were portrayed in those same media categories ($M = 3.53, SD = 1.06, \alpha = .84$) (Fujioka, 2005). Higher scores indicate a higher positive perception
of African-Americans in those media categories and higher accuracy in those media categories. Finally, participants were asked some general questions about their knowledge and experience with each game (see figure 8). Items assessing if they have ever played the game (Grand Theft Auto: III; yes = 57, no = 36) (Grand Theft Auto: San Andreas; yes = 48, no = 45) or own the game (Grand Theft Auto: III; yes = 19, no = 74) (Grand Theft Auto: San Andreas; yes = 13, no = 80) will be examined as possible covariates. Age is also included as a covariate for its possible influence upon implicit stereotype measures (see Baron & Banaji, 2006).

4.5 Outcome Measures

4.5.1 Implicit Association Task. Implicit stereotypes will be measured via a modified version of the Implicit Association Test (IAT) (see Greenwald, McGhee, & Schwartz, 1998) created using Media Lab software. An implicit association test “focuses on categorization of computer-presented stimuli with the assumption that speed of categorization is faster for categories consistent with attitudes” (Aberson, Shoemaker, & Tomolillo, 2004). The measure requires participants to categorize words/concepts to corresponding pictures or words. The IAT first requires participants to click either the E or I keys on a keyboard when a word appears in the middle of a computer screen. The word corresponds to a concept that is denoted by either the E or I keys, in past IAT measures a correct selection will move an individual to another word or picture, while an incorrect response will elicit a red X in the middle of the screen.
The participant cannot move onto to another word or picture until the correct answer has been selected. However, for the current examination participants were asked to respond as quickly as possible and told that there are no right or wrong answers. This is done because the IAT in the study is being used as a measure of implicit associations and not necessarily attitudes. Furthermore, primed constructs are thought to be on the forefront of individual’s minds and this requires evaluation of participant’s first thought or key response, not their correct or incorrect responses. Because individuals were not required to pick the correct response before moving on there were no response latencies in which to examine just response times.

The first session of the test asked participants to identify the valence of words (positive or negative). The list of words contained a total of seven negative words (poor, violent, criminal, lazy, inferior, dirty, & stupid). The negatively valenced words were chosen from research conducted by Devine (1989) who categorized stereotypical words associated with African-Americans. The positive words were: athletic, wealthy, intelligent, hard-working, clean, happy, & pleasant. The second session asked participants to identify pictures of black and white faces as either African-American or Caucasian/White. Each picture appeared in the middle of the computer screen with the word African-American in the top left hand corner and the word Caucasian/White in the top right hand corner. Participants selected either the E (African-American) or I (Caucasian/White) keys on the computer keyboard that they thought corresponded to
the race of the picture. The third session involved both the identification of valenced words and race of the pictured faces (combined task). African-American and the word “negative” appeared on the top left hand corner of the computer screen and correspond with pictures that are black faces and words that are negatively valenced. Caucasian/White and the word “positive” appeared on the top right hand corner of the computer screen. The fourth session asked participants to just categorize the faces. Sessions 5-7 were combined tasks where individuals categorized either faces/words by key responses. Session eight involved participants just categorizing faces, while in session nine participants were told to just categorize the words. Finally, sessions 10-12 involved participants categorizing the combined tasks where individuals categorized either faces/words by key responses. Each critical combined session differed in that the categories of African-American and Caucasian switched sides with the negative and positive categories for each combined session. This alternating method is similar to what has been done by Greenwald et al. (1998).

This measure included a total of 12 blocks (only the 7 combined tasks were examined) of 30 trials each. This assessed the implicit associations that may have been primed by the violent video games that contain racial representations. The faster individuals respond to the pairings of African-American-negative and Caucasian-positive the more likely it is that individuals were primed with stereotypes of African-Americans. Thus, an overall lower score will indicate that individuals processed or
responded to those pairings faster than the African-American-positive and Caucasian-negative pairings. Similar priming results in conjunction with the IAT have been found for media related concepts (e.g., Pokémon) (Han, Olson, & Fazio, 2006).

4.5.2 Affective Aggression. Aggressive affect was measured using Anderson, Deuser, and DeNeve’s (1995) 35-item state hostility scale. The scale was measured on a 7-point likert scale ranging from Strongly disagree to Strongly agree on items assessing on how individuals feel in regard to statements related to feeling furious, aggravated, disconcerted, irritated, frustrated, kindly, unsociable, outraged, agreeable, angry, offended, disgusted, etc... (α = .95). A factor analysis was conducted in order to determine the unique components of the scale. The factor analysis revealed two distinct factors (see table 2). One factor was composed of aggressive affect and another composed of positive affective items. However, there were items that did not load at a value of .6 or higher and were therefore excluded from the scale and further analyses (see table 2). The final negative/aggressive affect scale included a total of 18-items (M = 2.17, SD = 1.14, α = .96). The final positive affect scale contained 9-items (M = 4.27, SD =1.32, α = .92).

4.5.3 Aggressive cognition. Aggressive cognitions were measured using story completion stems taken from Barlett et al. (2007) & Tremblay & Belchevski (2004). The Barlett et al. items asked participants to take the position of a judge (3 items) and an athlete (3 items). The judge items ask participants to choose a sentencing on three
separate criminal cases, the tougher the sentence (i.e., Life in prison) the more likely it reflects stronger priming of aggression. The sentences were life in prison, 30 years, 20 years, 10 years, probation ($M = 3.29$, $SD = .76$, $\alpha = .64$). The athlete items ask participants to take the place of an athlete (baseball player, basketball player, football player) and decide how they would act to a provoking situation during a game. The responses ranged from “Immediately start fighting with the [other] player” to “avoid responding and go back to first base, foul line, or huddle” ($M = 2.93$, $SD = 1.13$, $\alpha = .73$).

The Tremblay and Belchevski (2004) items asked participants how they would want to respond to potential provocation scenarios. There were a total of 4 scenarios ranging from Not very likely to Very likely that they would want to respond aggressively to each situation. The responses increased in their level of aggression from becoming angry, to expressing their anger to that person, to being rude, to yelling or swearing at the person, to threatening that person, to finally using physical force against the provocuer in that situation. The scenarios were that you were: (1) waiting in line for a drink (cognitive drink scenario) when someone bumped into you and then gave you a dirty look ($M = 3.55$, $SD = 1.34$), (2) walking across and intersection (cognitive intersection scenario) when a car turning right almost hits you and then the driver calls you an idiot ($M = 3.90$, $SD = 1.52$), (3) at the movies (cognitive movie scenario) with your friends when some teenagers keep kicking the back of your seat even after one of
your friends gives them a dirty look ($M = 4.01, SD = 1.33$), and (4) at work (cognitive work scenario) when a co-worker who is supposed to be helping you is on the phone talking to a friend, when you ask this person to help you out they tell you to get lost ($M = 3.50, SD = 1.19$).

Finally, since each item was rated on how likely it is that they would want to respond to each scenario in terms of level of aggression on a 7-point semantic differential scale those items were also looked at in relation to aggressive cognitions. For instance, the response of “become angry” was examined across conditions ($M = 5.20, SD = 1.44$). Each aggressive level response was examined across conditions for expressing your anger to that person ($M = 4.91, SD = 1.41$), being rude ($M = 4.50, SD = 1.65$), yelling or swearing at that person ($M = 3.55, SD = 1.68$), threatening that person ($M = 2.40, SD = 1.48$), and using physical force against that person ($M = 1.93, SD = 1.17$).

4.5.4 Identification. Identification with character & character goals (Schneider et al., 2004) were measured using 8, 7-point semantic differential items ranging from strongly disagree to strongly agree. The items assessed how much participants felt they liked and identified with their character as well as how much effort they put towards achieving their characters goals (see figure 7). Also, participants were asked to rate on a one-item seven-point semantic differential scale how much they identified with their character in the videogame (Aaker, Brumbaugh, & Grier, 2000, Appiah, 2004b, 2006).
This measure was utilized in order to assess Blacks’ and Whites’ racial identification with their character. This one item measure was included with the other 8-items and showed good reliability \( (M = 3.47, SD = 1.16, \alpha = .85) \).

4.5.5 Perceived Similarity. Perceived similarity (Whittler, 1989) was measured using 5, 7-point, semantic differential items ranging from Not all similar to Very similar \( (M =2.33, SD = 1.39, \alpha = .66) \). The items assessed the degree to which the participants felt that the characters were similar to themselves in lifestyle, cultural background, dress, appearance, and basic values (Whittler). These items have been used in previous research to assess participant’s perceived similarity to their character (Aaker, Brumbaugh, & Grier, 2000; Appiah, 2001a).

A factor analysis on the similarity items revealed that there were only three items that loaded above a value of .5 or higher in the matrix. Similarity perceptions related to appearance, background, and dress all loaded above .5 using a Direct Oblimin Rotation and were the only items examined for analysis related to perceived similarity. The overall scale displayed poor reliability \( (\alpha = .66) \). However, when the two items that loaded below .5 (similar perceptions of lifestyle & basic values) were removed the scale’s reliability improved \( (\alpha = .74) \). The deletion of these two items makes sense not just for improved scale reliability. For instance, participants probably did not feel similar to the main characters in terms of lifestyle or values because each character regardless of race or ethnicity is a criminal who engages in murder and robbery in order...
to achieve their goals. It is highly unlikely that any undergraduate student would find similarity to those values or that lifestyle within their own.

4.6 Data Analysis

All data were analyzed using SPSS. Hypotheses were tested in 2 (condition) x 2 (participant race) experimental design using ANCOVA. As mentioned previously certain factors will be treated as covariates in some of the analyses. Trait hostility, gender, and prior video game play experience will be treated as covariates for hypotheses two and three for their possible relationship with outcomes (aggression) associated with playing violent video games. However, trait hostility need not be included when examining hypothesis one, four, and research questions one, two, or three because these expectations and questions do not contain variables related to aggression. Also, covariates related to perceptions of African-American media portrayals were included as covariates for the IAT measure, since it is being included as a priming measure of stereotypes. Finally, whenever continuous measures were treated as independent variable they were mean transformed in order to be included within ANOVA analyses (e.g. *Ethnic Identification*).
CHAPTER 5

Results

5.1 Pilot Study

The results of the pilot study revealed that the video games did not significantly differ in terms of attitudes towards the video game $F(1, 55) = 2.88$, n.s. or attitudes towards the video game character $F(1, 55) = 3.34$, n.s. Furthermore there were no significant differences between the video games for frustration $F(1, 56) = .223$, n.s. or excitement $F(1, 56) = 1.15$, n.s. However, the results did show that the video games differed on difficulty $F(1, 56) = 5.350$, $p < .05$, enjoyment $F(1, 56) = 5.186$, $p < .05$, violent content $F(1, 56) = 7.54$, $p < .05$, and violent graphics $F(1, 56) = 6.75$, $p < .05$.

Grand Theft Auto: San Andreas ($M = 3.96$, $SD = 1.77$) was rated as more difficult than Grand Theft Auto III ($M = 3.00$, $SD = 1.39$). Grand Theft Auto III ($M = 4.73$, $SD = 1.82$) was rated as more enjoyable than Grand Theft Auto: San Andreas ($M = 3.68$, $SD = 1.70$). Finally, Grand Theft Auto San Andreas was rated higher for violent content ($M = 6.75$, $SD = .518$) and violent graphics ($M = 6.14$, $SD = 1.08$) than that for Grand Theft Auto III in violent content ($M = 6.26$, $SD = .784$) and violent graphics ($M = 5.36$, $SD = 1.18$).

However, upon further analysis it was shown that gender may have been
influencing these results. For instance, there were no interaction effects between condition and gender for difficulty $F(1, 54) = 1.21$, n.s. or enjoyment $F(1, 54) = 1.15$, n.s. But, there were main effects for gender on difficulty $F(1, 54) = 12.957$, $p < .05$ and enjoyment $F(1, 54) = 7.74$, $p < .05$. Female participants regardless of gaming condition were more likely to experience difficulty ($M = 4.23$, $SD = .282$) and have overall less enjoyment ($M = 3.54$, $SD = .327$) than male participants for difficulty ($M = 2.86$, $SD = .255$) and enjoyment ($M = 4.76$, $SD = .295$).

5.2 Hypothesis 1

The first hypothesis predicted that individuals who played a violent video game with stereotypical racial-representations (*Grand Theft Auto: San Andreas*) are more likely to exhibit implicit stereotypical associations than individuals who played a violent video game with non-stereotypical representations (*Grand Theft Auto: III*). In order to assess if there were differences based upon the conditions the means from the 3 blocks containing Caucasian/White-positive word pairings and African-American/Black-negative word pairings ($M = 965$ ms, $SD = 330.4$) were subtracted from the means from the 3 blocks containing Caucasian/White-negative word pairings and African-American/Black-positive word pairings ($M = 919$ ms, $SD = 283.1$) (see Greenwald, McGhee, & Schwartz, 1998). Thus, lower scores indicate faster responding to African-American/Black-negative and Caucasian/White-positive pairings than African-American/Black-positive and Caucasian/White-negative pairings. Furthermore,
the means from the response times will be naturally log-transformed in order to account for differences in longer and shorter response times. However, individuals whose response times were either below 300ms or above 3,000ms were dropped from the analysis in order to account for outliers (see Greenwald et al.). This allowed the researcher to examine both the log transformed means as well as the untransformed means. Only 2 individuals were dropped from the analysis for being either above or below this time criteria. However, another 6 participant’s data could not be obtained resulting in about 4% of the participants that could not be included. The results did show that the response times were relatively normally distributed.

The results did not support the hypothesis. There was no significant main effect for condition \( F(1, 174) = .945, \text{n.s.} \). However, there was a significant interaction effect between ethnicity and condition \( F(1, 174) = 5.64, p < .05, \eta_p^2 = .032 \), when controlling for age \( (F(1,174) = 8.61, p < .05) \), valenced-views of African-American media portrayals \( (F(1,174) = 3.04, \text{n.s.}) \), and perceptions of accuracy of African-American media portrayals \( (F(1, 174) = 2.56, \text{n.s.}) \) (see figure 9). Caucasian participants responded faster to African-American-negative/Caucasian-positive pairings after playing *Grand Theft Auto: San Andreas* \( (M = -41.95, SD = 168.57) \) than after playing *Grand Theft Auto: III* \( (M = -63.62, SD = 168.01) \), furthermore African-American participants respond faster to those same pairings after playing *Grand Theft Auto: San Andreas* \( (M = 134.7, SD = 293.6) \) than after playing *Grand Theft Auto: III* \( (M = 238.01, \text{n.s.}) \).
The log-transformed response times also showed similar interaction effects however, this only approached significance \( F(1, 174) = 3.76, p = .054 \), \( \eta_p^2 = .02 \), when controlling for age \( (F(1, 174) = 4.49, p < .05) \), valenced-views of African-American media portrayals \( (F(1,174) = 2.02, \text{n.s.}) \), perceptions of accuracy of African-American media portrayals \( (F(1,174) = 2.32, \text{n.s.}) \), and whether or not individuals owned that particular video game \( (F(1,174) = 3.77, p < .05) \).

5.3 Hypothesis 2

The second hypothesis predicted that individuals who played a violent video game with stereotypical racial-representations will be more likely to report higher aggressive thoughts than individuals who played a violent video game with non-stereotypical representations. The results showed no significant differences between the conditions for the Tremblay and Belchevski (2004) items on either of the judge items \( F(1, 184) = .007, \text{n.s.} \) or the athlete items \( F(1, 184) = .011, \text{n.s.} \). Also, the results did not support the hypothesis for the aggression scenarios: cognitive drink scenario \( F(1, 185) = .163, \text{n.s.} \), cognitive movie scenario \( F(1, 185) = .103, \text{n.s.} \), cognitive intersection scenario \( F(1, 185) = 3.51, \text{n.s.} \), or the cognitive work scenario \( F(1, 185) = 3.21, \text{n.s.} \). Furthermore, the results did not significantly differ for any of the aggressive response levels: becoming angry \( F(1, 185) = 1.60, \text{n.s.} \), expressing your anger \( F(1, 185) = 1.57, \text{n.s.} \), being rude \( F(1, 185) = 1.08, \text{n.s.} \), yelling or swearing at this person \( F(1, 185) = .363, \text{n.s.} \), threatening that person \( F(1, 185) = 2.38, \text{n.s.} \), using physical force against
that person $F(1, 185) = .210$, n.s.

5.4 Hypothesis 3

Individuals who play a violent video game with stereotypical racial-representations will be more likely to report higher aggressive affect than individuals who play a violent video game with non-stereotypical representations. The results showed no significant differences between the conditions for aggressive affect $F(1, 186) = .322$, n.s.

5.5 Hypothesis 4

Both Black and White participants will be more likely to identify with the lead character in the violent video with stereotypical racial representations (black main character), than individuals who play a violent video game with non-stereotypical depictions. This hypothesis was not supported. The identity items did not show any significant differences based upon on condition $F(1, 170) = .180$, n.s. There was a significant main effect for perceived similarity $F(1,181) = 8.952, p < .05$. However, this main effect was qualified by a significant interaction between condition and participant’s race/ethnicity $F(1,181) = 75.689, p < .001, \eta^2_p = .29$. This interaction effect will be discussed in exploratory analyses.
5.6 Research Question 1

Does Ethnic Identification moderate the relationship between African-American participants and level of character identification? The results showed no significant interaction between Ethnic Identity and Identification ratings with character ($r = .14, p = \text{n.s.}$). There was no support for this research question. Ethnic Identification did not moderate the relationship between African-American participants and character identification $F(1, 74) = 1.00, \text{n.s.}$ Ethnic Identification did show a marginally significant correlation with Perceived Similarity ($r = .21, p = .055$). However, the results showed that there was no significant interaction between condition and Ethnic Identity for Perceived Similarity $F(8, 85) = .705, \text{n.s.}$

5.7 Research Question 2

To what extent does past video game play experience influence implicit priming of stereotypes? A Pearson correlation showed that there was no significant correlation between video game play and response times ($r = .005, \text{n.s.}$). Also, there was no significant correlation between video game play and log-transformed response times ($r = .06, \text{n.s.}$).

5.8 Research Question 3

Does valence of personal experience with racial minorities and perceptions of media portrayals of racial minorities influence the implicit priming of stereotypes? A Pearson correlation indicated a significant positive correlation between pleasant/close
perceptions of relationships with African-Americans and response times ($r = .219, p < .05$). However, there was no significant correlation between pleasant/close perceptions of relationships with African-Americans and log-transformed response times ($r = .186$, n.s.). Second, a partial correlation was ran examining whether or not there was a significant correlation between these measures, while controlling for ethnicity. The results showed that there is no significant correlation between perceptions of African-American media portrayals and response times ($r = .07$, n.s.) or log-transformed response times ($r = .07$, n.s.) when controlling for ethnicity. Also, accuracy perceptions of African-American media portrayals was not significantly correlated with response times ($r = -.08$, n.s.) or log-transformed response times ($r = -.08$, n.s.). Finally, it was examined whether or not these perceptions could moderate the relationship between condition and response times. The results showed that there was no significant interaction between condition and perceptions of African-American media portrayals $F(7, 177) = .422$, n.s. or between accuracy perceptions of African-American media portrayals $F(9, 177) = .585$, n.s.

5.9 Exploratory Analyses

A control condition ($N = 68$) was conducted in conjunction with the two experimental conditions. As mentioned previously, participants were randomly assigned to play one of the video games (Grand Theft Auto: San Andreas or Grand Theft Auto: III), however participants were also randomly assigned to a third condition (control) in
which the participants did not play the video game. In this condition (control) participants only completed the pre-test measures, then the implicit stereotype association measure, and finally the post-measures with the exception of the identification items. The identification items were excluded because participants did not play a video game and therefore did not make sense for them to complete. The results did show significant differences between the control condition and the two experimental conditions. There was a significant main effect for condition $F(2, 254) = 7.27, p < .001$, $\eta_p^2 = .06$, when controlling for trait hostility ($F(1, 254) = 18.29, p < .001$) and gender ($F(1, 254) = 15.39, p < .001$). Thus, participants in the control condition reported significantly lower aggressive affect ($M = 1.76, SD = .885$), than either the *Grand Theft Auto: III* condition ($M = 2.25, SD = 1.12$) or the *Grand Theft Auto: San Andreas* condition ($M = 2.38, SD = 1.24$). Also, there was significant interaction effect for one of the affective items that was dropped after the factor analysis. The item *offended* showed a significant interaction effect between participant race by condition $F(1, 252) = 5.05, p < .05$, $\eta_p^2 = .04$. The results showed that Black participants who played *Grand Theft Auto: San Andreas* were more offended ($M = 3.80, SD = 2.32$) than either those Black participants who played *Grand Theft Auto: III* ($M = 2.17, SD = 1.44$) or who were in the control condition ($M = 2.55, SD = 1.65$). However, this effect was only significant for Black participants, the White participants did not show any significant differences across the conditions for being offended $F(1, 142) = .907$, n.s.
Furthermore, the results showed significant interaction effects between condition and ethnicity for positive affect $F(2, 250) = 3.07, p < .05, \eta_p^2 = .02$. Thus, African-American participants in the control condition showed higher positive affect ($M = 4.83, SD = 1.52$) than either the GTA: III condition ($M = 4.08, SD = 1.22$) or the Grand Theft Auto: San Andreas condition ($M = 3.48, SD = 1.39$). Also, Caucasian/White participants in the control condition showed higher positive affect ($M = 5.31, SD = .969$) than either the Grand Theft Auto: III condition ($M = 3.99, SD = 1.05$) or the GTA: San Andreas condition ($M = 4.18, SD = 1.08$) (see figure 10).

The results for hypothesis four (identification with character) did not reveal any significant main effects for condition. However, the results did show some significant interaction effects for one of the identity items (#9) and perceived similarity. As mentioned previously, identity item-9 was added together with the other 8—items assessing identification with character and character’s goals within that video game. Item-9 has been used previously as a single item measure to assess identification with another individual. The single item-9 did show a significant interaction effect between condition and participant race/ethnicity $F(1,181) = 7.817, p < .05, \eta^2_p =.02$. Thus, African American participants in the black main character condition (Grand Theft Auto: San Andreas) had higher levels of identification ($M = 2.19, SD = 1.58$) than in the white main character condition ($M = 1.45, SD = .95$). Furthermore, Caucasian/White participants in the white main character condition (Grand Theft Auto III) reported
higher levels of identification ($M = 1.68, SD = 1.02$) than in the black main character condition ($M = 1.50, SD = .658$). Also, as mentioned previously there was a significant interaction effect between condition and participant’s ethnicity/race $F(1,181) = 75.689$, $p < .001$. Thus, African-American participants had higher perceived similarity perceptions ($M = 3.63, SD = 1.33$) in the black main character condition (*Grand Theft Auto: San Andreas*) than in the white man character condition (*Grand Theft Auto III*) ($M = 1.72, SD = 1.01$). Furthermore, Caucasian/White participants had higher perceived similarity perceptions in the white character condition ($M = 2.45, SD = 1.28$) than in the black character condition ($M = 1.50, SD = .749$) (see figure 11).

As mentioned previously, prior game play experience may influence implicit priming because individuals may have already held constructs or models for that video game. For instance, questions assessed whether or not individuals have played that specific video game in the past. In order to test for a possible effect, only cases in which participants had played that video game in the past were selected. However, valence of African-American media portrayals and perceptions of accuracy of African-American media portrayals were still included as possible covariates. The selection of cases resulted in a total of fifty-six individuals who had played *Grand Theft Auto: III* and forty-two individuals who had played *Grand Theft Auto: San Andreas*. A chi-square revealed that there were no significant differences for participant race by previous game play ($X^2 = 2.171$, n.s.). The results showed a significant interaction effect between
condition and ethnicity for both the non-transformed response latencies $F(1, 98) = 8.88$, $p < .05$, $\eta^2_p = .08$ and log-transformed latencies $F(1, 98) = 5.22$, $p < .05$, $\eta^2_p = .05$.

Thus, African-American participants who had previously played _Grand Theft Auto: San Andreas_ showed shorter response times ($M = 44.55$, $SD = 299.04$) after playing that video game, than African-American participants who had previously played _Grand Theft Auto: III_ ($M = 225.16$, $SD = 218.98$) and played that version of the video game. Furthermore, Caucasian/White participants who had previously played _Grand Theft Auto: San Andreas_ showed shorter response times ($M = -28.72$, $SD = 150.75$) after playing that video game, than Caucasian/White participants who had previously played _Grand Theft Auto: III_ ($M = -41.86$, $SD = 140.53$) and played that version of the video game (see figure 12).

Also, African-American participants who had previously played _Grand Theft Auto: San Andreas_ showed shorter log-transformed response times ($M = .030$, $SD = .097$) after playing that video game, than African-American participants who had previously played _Grand Theft Auto: III_ ($M = .068$, $SD = .066$) and played that version of the video game. Finally, Caucasian/White participants who had previously played _Grand Theft Auto: San Andreas_ showed shorter log-transformed response times ($M = -.017$, $SD = .053$) after playing that video game, than Caucasian/White participants who had previously played _Grand Theft Auto: III_ ($M = -.028$, $SD = .056$) and played that version of the video game.
CHAPTER 6

Discussion

Although, research examining violence in video games has been well-explored, empirical studies that look past simple violent content in order to examine contextual features of video games are just beginning to gain ground. For instance, past research has found a link between racial representations in video games and aggressive outcomes (Eastin et al., 2009). The current study intended to examine the inclusion of racial-representations within video games in order to understand their possible effects upon outcomes related to aggression and stereotyping.

As hypothesized, racial-representations within a violent video game did influence implicit stereotype associations via interactions with participant race. The results showed differences between participant race and character/avatar race for an implicit association measure. The IAT, or implicit association task, is deemed to be a way to assess the strength of an association between target concepts (African-American or Caucasian) and an attribute dimension (negative or positive) by examining the quickness of responses to those associations when paired together (Fazio & Olsen, 2003). In this task participants are asked to press computer keys associated with one of the paired constructs that on certain trials will switch categories (the pairings alternate).
Thus, congruent categories should be processed quicker (faster response times) and non-congruent categories should take longer to process. However, in this study those negative constructs or attributions were explicitly taken from Devine’s research of thought listings about stereotypes of African-Americans. This resulted in an association that didn’t necessarily involve dual meanings because both categories (target concepts and attribute dimensions) were related via stereotype associations (Black faces and stereotypical thoughts).

The results showed that white participants who played the violent video game laden with stereotypical representations (Grand Theft Auto: San Andreas) responded faster to images and concepts that associated African-Americans with negative (stereotypical) constructs and Caucasians with positive constructs. These response times were significantly higher for White participants who played the violent video game with a lack of racial representations (Grand Theft Auto: III). Thus, participants who had played Grand Theft Auto: III took longer to respond to the African-American-negative and Caucasian-positive construct pairings.

The same results were found for African-American participants although the response times were much higher overall when compared to White participant’s response times. This result may be because African-Americans have shown higher levels of racial identity than whites (Phinney, 1992). Thus, for African-American’s race is something that is very relevant and often a factor that influences decisions. However,
the results did show a similar pattern to that of white participant’s response times. African-American participants who played *Grand Theft Auto: San Andreas* responded faster to images associating African-Americans with negative constructs and Caucasians with positive constructs. There is no reason to believe that African-American participants should have responded any differently to the implicit measures. For instance, Correll et al. (2002) found evidence to suggest that both Caucasian and African-American participants exhibited subsequent judgments on shoot/don’t shoot decisions based upon the race of the person within a video game. Thus, participants were more likely to shoot African-American characters within a shoot/don’t shoot decision task and were more likely to make errors towards those characters (when don’t shoot was the correct response) regardless of participant race.

The results provide evidence that violent video games that contain stereotypical images of African-Americans are likely to prime implicit stereotypes of that minority or group of individuals. Furthermore, this stereotype priming through a video game may cause individuals to respond faster to such images because they are congruent with that person’s currently primed knowledge structures. The results support these contentions. *Grand Theft Auto: San Andreas* is a commercially produced video game (best-selling) that contains highly stereotypical images and story lines of African-Americans and Black culture (see Leonard, 2006). This study found evidence to suggest that those images and representations of African-Americans as violent criminals, murders, and
thieves do influence associations shortly after playing that video game. Thus, the video game that incorporated stereotypical depictions of African-Americans did influence priming of stereotypes associated with that minority group. Furthermore, it should be noted that in the pre-test individuals rated *Grand Theft Auto: San Andreas* as being more violent and containing more violent graphics than *Grand Theft Auto: III*. However, the ESRB had given both games a mature rating for depictions of violence and strong language. It could be that *Grand Theft Auto: San Andreas* was viewed as more violent and deemed to contain more violent graphics because of the majority of racial-representations included within that particular video game’s content.

The exploratory analyses also found evidence that prior video game play experience with that particular game influenced the ability to prime those associations. It was found that when running the analyses with only individuals who had played that video game before that their response times decreased, especially with *Grand Theft Auto: San Andreas*. Thus, having played the video game before may have made those associations or constructs more accessible and therefore readily primed. More often than not most of today’s video games involve extended amounts of game play in order to complete or beat that game (see Sherry & Lucas, 2003). *Grand Theft Auto: San Andreas* was produced for market and has higher entertainment value than a game produced for laboratory study. Video games produced for market often incorporate narratives, exploration, and game advancement all of which may influence individual’s
knowledge structures about that type of game play. It could be that prior video game play allows individuals to activate past mental models about that type of video game and the type of play that is involved with that particular game. Farrar et al. (2006) suggested that frequent video game playing is likely to form accessible mental models of aggression and that features of the depictions within that video game are likely to affect subsequent interpretations. Thus, if that video game has been played before it allows individuals to bring up past referents to how they have played the video game in the past and may activate subsequent associations that were created or reinforced through playing that particular video game.

Furthermore, the results showed partial support for identification with an avatar/character. African-American participants exhibited greater perceptions of similarity with gaming character when they had played a video game with a black main character (Grand Theft Auto: San Andreas) than when playing a video game with a white main character (Grand Theft Auto: III). Unexpectedly the Caucasian participants also exhibited similar responses. Caucasian participants who played a video game with a white main character (Grand Theft Auto: III) showed higher perceived similarity with that character than participants who played the video game with a black main character (Grand Theft Auto: III). Appiah (2004a) found evidence to suggest that Caucasians/whites are likely to identify with Black media representations, not because of race or ethnicity, but because factors related to styles and preferences. The current
study did not find similar results that may be based upon third-person views of the character/avatar.

Furthermore, the results of an exploratory analysis showed that African-American participants in the black main character condition had higher levels of identification with that character than in the white main character condition. Similarly, Caucasian participants also exhibited similar levels of identification after playing *Grand Theft Auto: III* (white main character condition). However, the Caucasian participant’s results on identification should be interpreted with caution as there was only a 0.1 value difference between those conditions. The results suggest that African-American participants were likely to find the black main character of *Grand Theft Auto: San Andreas* similar to themselves in terms of background, appearance, and dress. Furthermore, those similarity perceptions extended to identification with that character/avatar. The results are somewhat similar to the results found by Eastin et al. (2009) who found evidence to suggest that video game attributes such as character race is likely to influence outcomes such as identification.

It has been suggested that character attributes such as race may also contribute to outcomes related to aggressive affect. Although, it was not statistically significant we can see that the conditions did significantly differ. Participants in the control condition did show overall lower affective aggression than the other two conditions. This does show that violence in a video game regardless of character attributes does influence
aggressive outcomes. There was a difference between the experimental conditions, but
the difference was not significant. Participants who played *Grand Theft Auto: San
Andreas* (*M* = 2.38) exhibited higher aggressive affect than participants who played
*Grand Theft Auto: III* (*M* = 2.25). The means were not significantly different, but in the
expected direction. The negligible difference between the means questions how much
difference there was between experimental conditions for aggressive outcomes. For
instance, neither the aggressive affect nor thoughts were significantly different from one
another. However, outcomes related to identification and perceived similarities were
influenced by the attributes related to character race. Perhaps the IAT measure is a
better indicator of these influences as it tests more implicit unaware responses than
more explicit measures related to aggression. Thus, participants could have been well
aware of the research and effects of violent video games and this influenced their
responses on the aggressive affective and cognition items. Both *Grand Theft Auto
games* were very popular and created quite a controversy for their content, which could
have added to a bias in participants responding.

6.1 Theoretical Implications

The General Aggression Model (GAM) holds that both situational and personal
variables can influence the interrelating routes (affect, arousal, and cognition) to
aggression (Bushman & Anderson, 2002). The GAM accounts for the outcomes of
aggression by incorporating personal variables such as gender and trait hostility in
conjunction with situational variables like playing a violent video game. The results of the current study do find that personal variables related to race/ethnicity do influence outcomes related to stereotyping via playing a violent video game. Although, stereotyping is not a hypothesized outcome predicted by the GAM it does relate well to stereotypes of minorities or out-groups that have been stereotyped as being violent or aggressive. The following study found that racial-representations in a video game do influence and can prime stereotype associations of African-Americans as being violent, aggressive, and criminal-like. This does support some contentions of the GAM. It was also found that both violent video games resulted in higher affective aggression than a control condition. This further supports predictions made by the GAM. It could also be suggested that the aggressive affect caused by playing the violent video game influenced appraisal processes. For instance, personal and situational variables interact to influence a persons present internal state (affect—cognition—arousal) that then influences appraisal and decision processes (Anderson et al., 2004). Personal factors related to race, ethnicity, and even gender interacted when playing a violent video game with racial-representations (Grand Theft Auto: San Andreas) to influence aggressive affect and cognitions, which in turn influenced a subsequent appraisal task (the IAT).

Thus, the current research may add to the GAM by examining a possible route to aggression from personal factors related to race and situational inputs (violent video games with racial-representations) through cognitions (stereotype associations) and
affect into the appraisal process. It adds new variables that have not yet been considered by past research. Furthermore, aggressive thoughts may be primed simply by character representations (i.e., race, gender) by themselves or in conjunction with violent video game play. Thus, aggressive cognitions or associations may be primed by video games that represent character depictions that are associated with violence and aggression. In conditions where individuals may be primed with stereotypes unconsciously or are unaware of that prime it could possibly influence decisions or responses. Devine (1989) found evidence to suggest that when individuals were unconsciously primed with stereotypes of blacks that both low and high prejudice individuals showed automatic stereotyping. Although, the process may not exactly be unconscious priming, individuals in the current experiment may have been unaware of the primed associations through playing a video game with racial-representations. Individuals could have been cognitively focused upon responding to the IAT without being aware that the video game could have influenced their responses.

Even though a person may be giving high cognitive effort towards the task at hand, the priming caused by the racial-representations within that video game aided in the ease of which the information was categorized. According to Fiske et al. (1999) individuals can process information through category based distinctions or upon individuated information. The IAT does ask individuals to categorize or place correct responses with their corresponding category. It could be suggested that the IAT relies
heavily upon individual’s category based distinctions. Furthermore, Bodenhausen et al. (1999) proposed that stereotypes are a category of heuristic cues that individuals rely upon when making decisions without requiring a lot of cognitive effort. Thus, the primed stereotypes were used for categorizing the information required by the IAT. It could be suggested that the GAM needs to include processes, which differentiate between heuristic and systematic processing. This could add understanding of how unconscious or unawareness of primed associations could influence the appraisal processes, which influence both thoughtful and impulsive actions (Anderson et al., 2004).

Also, the results of this study add insights into identification with video game characters based upon third-person perspectives. Kelman’s (1961) identification theory holds that individuals are likely to make decisions about a source based upon the level of similarity with that source. Identification with a media character is based upon a cognitive connection between an audience member and that media character such that the individual empathizes with and takes the perspective of that character (Cohen, 2001). However, Cohen does not consider similarity to be a key requirement of identification because for similarity perceptions to occur and individual must imagine themselves outside of that character. Thus, similarity hinders one’s ability to take the perspective because an individual needs to imagine oneself as that character from the inside of their psyche and not from the outside. However, it should be mentioned that
some researchers do think that similarity is a key requirement for identification to occur (Maccoby & Wilson, 1957; Turner, 1993). Video games are unique in this perspective because they can offer view-points that may influence levels of identification and similarity.

Video games can often provide two different viewpoints: first-person perspectives and third-person perspectives. In a first-person perspective the participant’s view is from the eyes of the main character. Thus, participants only see the character arms on the screen. Third-person perspectives usually include the entire character and are viewed from the participant’s view as only a few steps right behind the character (Farrar et al., 2006). Thus, individuals can view their entire character in terms of appearance, dress, gender, and even that characters race or ethnicity. Farrar et al. did find evidence to suggest that perspective within a violent video game can influence outcomes related to aggression. Farrar et al. examined differences in individuals’ responses to video games by manipulating contextual features related to view (third-person vs. first-person). Although, point of view did not influence greater perceptions of immersion or involvement, third-person perspectives did influence perceptions of focus. Thus, participants who played the video game in a third-person view reported greater focus than in first-person view. This increase in focus could possibly add to the priming of stereotypes. Increased focus could lead individuals to make self- and other-distinctions that may likely influence in-group and out-group distinctions based upon
the race of that character or avatar. The results related to similarity perceptions do suggest that participants were aware of their characters race in relation to their own race/ethnicity.

First, stereotype associations may be more influenced because individuals can make self- and other distinctions when playing a video game in a third-person perspective. This could influence category based distinctions. For instance, most participants did rate characters/avatars who were of the same race as themselves higher in similarity perceptions than opposite race characters/avatars. Research conducted by Mastro (2003) has found that television portrayals of racial minorities can often prime in-group and out-group distinctions. Much like television, third-person perspective offers views of the entire character. This may make those in-group and out-group distinctions more salient than when playing a first-person perspective video game.

Second, these findings show that individuals were well aware of their characters race/ethnicity. It could be that third-person perspectives offer individuals the ability to make similarity judgments better than first-person perspectives because the individual can observe their characters demographic and contextual features. For white participants who played *Grand Theft Auto: San Andreas*, this meant that they were well aware that their character was not similar to themselves in terms of appearance. And since most Caucasian/white individuals do not use race as a part of their identity that their levels of identification with character (regardless of condition) would be lower.
For black participants who played *Grand Theft Auto: San Andreas*, this meant that race of the character did influence both similarity perceptions and levels of identification. This also meant that for black participants who played *Grand Theft Auto: III* that both similarity perceptions and identification would be lower because ethnic identity is a factor for African-Americans when evaluating a source (Phinney, 1992). The results do show larger differences between the conditions for African-American participants than Caucasian/white participants.

### 6.2 Future Directions & Limitations

As mentioned previously, it is possible that violent video games with stereotypical representations may prime stereotype associations of that group of individuals. However, the current study did not examine already held beliefs about African-Americans before individuals played the video game. The study did account for beliefs or perceptions of how African-Americans are portrayed within different media contexts. Future studies should examine existing knowledge structures or beliefs about out-groups in order to understand possible moderating or mediating effects of those beliefs on game play outcomes. Furthermore, exploratory analyses did find that individuals who had played that video game before exhibited quicker response times to the African-American-negative and Caucasian-positive pairings. However, participants were not asked about the other version of the video game just the one that they had played. Future research should examine the influence of similar video games with racial
representations. Also, recency and frequency of game play needs to be examined as these variables could add considerably more information to priming of violence and stereotypes. Furthermore, the results showed that stereotype associations could be primed shortly after playing a video game that incorporated racial-representations. However, the strength of those associations needs to be further examined. Longer completion times between playing the video game and participants responding to the IAT need to be conducted in order to assess how long the prime is activated following game play.

A limitation of the research related to the IAT is that the order in which individuals completed the measures was not randomly assigned. For instance, individuals in the experimental conditions completed the pre-test, played one of the video games, completed the affective items, then completed the IAT and then the cognitive scenarios in that order. It could be that a possible influence in the results is related to ordering effects associated with the measures. However, the control condition did order the measures differently. For instance, participants who were randomly assigned to the control condition completed the pre-test, then the IAT measure, then the affective items and then the cognition scenarios. It could have been suggested that IAT itself could have influenced aggressive affect as participants were exposed to a prime (black & white faces, along with negative vs. positive constructs) and the measure is quite repetitive, which could cause some level of frustration. However, the results of the
analysis comparing all three conditions did show that the both experimental conditions were significantly higher in affective aggression than the control condition. Thus, the IAT measure itself did not influence affective aggression. Finally, it was shown that the control condition did elicit the highest amount of positive affect compared to the experimental conditions.

In addition to further exploring these limitations, future research should expand upon the current findings. For instance, is violence a main component that may elicit stereotype associations or is it simply the inclusion of racial-representations? Extended research should examine if racial-representations within non-violent video games influence similar implicit associations. Also, directions should be examined within stereotypical roles in video games, i.e. sports games or video games related to the hip-hop culture. Also, other types of minority portrayals within video games should be examined for influence in post-game play outcomes. The current study should be used to generate and explore further possible studies related to racial-representations within video games and how that may influence or impact both positive and negative outcomes associated with game play.
REFERENCES


93


Table 1: Cross tabulation Ethnicity by Condition.

<table>
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<th>Cond.</th>
<th>Ethnicity</th>
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<th></th>
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<td></td>
<td></td>
<td>African-American</td>
<td></td>
<td>Caucasian</td>
<td></td>
</tr>
<tr>
<td>Grand Theft Auto: III</td>
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<td>47</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Theft Auto: San Andreas</td>
<td>47</td>
<td>46</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
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<td>93</td>
<td>186</td>
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Table 2: Cross tabulation of participant race x participant gender for condition.

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<tr>
<th>Gender</th>
<th>Ethnicity</th>
<th>GTA: III</th>
<th>GTA: SA</th>
<th>Control</th>
<th>Total</th>
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<tbody>
<tr>
<td>Male</td>
<td>Con.</td>
<td>16</td>
<td>21</td>
<td>7</td>
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<td>GTA: III</td>
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<td>23</td>
<td>27</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>GTA: SA</td>
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<td>44</td>
<td>34</td>
<td>121</td>
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<tr>
<td></td>
<td>Control</td>
<td>7</td>
<td>77</td>
<td>133</td>
<td>133</td>
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<tr>
<td>Female</td>
<td>Con.</td>
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<td>26</td>
<td>11</td>
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<td>23</td>
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<td></td>
<td>GTA: SA</td>
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<td>34</td>
<td>133</td>
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<tr>
<td></td>
<td>Control</td>
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<td>34</td>
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<td>133</td>
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<tr>
<td>Total</td>
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<td>67</td>
<td>66</td>
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Table 3: Principal components factor analysis on affective aggression items.

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
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<tbody>
<tr>
<td>(Negative Affect)</td>
<td>(Positive Affect)</td>
</tr>
<tr>
<td>I feel burned up</td>
<td>.861</td>
</tr>
<tr>
<td>I feel mad</td>
<td>.857</td>
</tr>
<tr>
<td>I feel bitter</td>
<td>.830</td>
</tr>
<tr>
<td>I feel enraged</td>
<td>.826</td>
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<tr>
<td>I feel enrage</td>
<td>-0.56</td>
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<tr>
<td>I feel like yelling at</td>
<td>.814</td>
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<tr>
<td>somebody</td>
<td></td>
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<tr>
<td>I feel frustrated</td>
<td>.808</td>
</tr>
<tr>
<td>I feel angry</td>
<td>.794</td>
</tr>
<tr>
<td>I feel like I’m about to</td>
<td>.771</td>
</tr>
<tr>
<td>explode</td>
<td></td>
</tr>
<tr>
<td>I feel stormy</td>
<td>.771</td>
</tr>
<tr>
<td>I feel irritated</td>
<td>.756</td>
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<tr>
<td>I feel outraged</td>
<td>.749</td>
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<tr>
<td>I feel aggravated</td>
<td>.734</td>
</tr>
<tr>
<td>I feel furious</td>
<td>-1.49</td>
</tr>
<tr>
<td>I feel like的脸面</td>
<td>-0.91</td>
</tr>
<tr>
<td>I feel like banging</td>
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</tr>
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<td>on a table</td>
<td>-0.07</td>
</tr>
<tr>
<td>I feel disagreeable</td>
<td>-0.48</td>
</tr>
<tr>
<td>I feel cruel</td>
<td>-0.02</td>
</tr>
<tr>
<td>I feel like swearing</td>
<td>-0.05</td>
</tr>
<tr>
<td>I feel understanding</td>
<td>-0.00</td>
</tr>
<tr>
<td>I feel kindly</td>
<td>-0.02</td>
</tr>
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<td>I feel friendly</td>
<td>-0.03</td>
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<td>I feel polite</td>
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<td>I feel amiable</td>
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<td>I feel cooperative</td>
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<td>I feel good-natured</td>
<td>-0.17</td>
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<tr>
<td>I feel sympathetic</td>
<td>-0.15</td>
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</table>

Note. These 2 factors explained 61% of the variance. The coefficients reported here were taken from the SPSS pattern matrix table. RC means that items have been reverse-coded.
APPENDIX B: FIGURES
Thank you for participating in this survey!

School of Communication, Ohio State University

Please answer each question to the best of your ability. You will be guaranteed anonymity; and please do not write your name on the questionnaire. The questionnaire will take approximately 5 to 10 minutes to fill out. We would like to know some information concerning your feelings towards the game and the games characters. Please be as specific as possible when you give your answers. As previously mentioned, your answers are anonymous.

Below are a few scales with ratings from 1 to 7. For each scale please circle the number that best indicates how you feel about the video game. For example, 1 = Boring, and 7 = Interesting

1. I feel that that the **VIDEOGAME** is...

<table>
<thead>
<tr>
<th>boring</th>
<th>bad</th>
<th>negative</th>
<th>useless</th>
<th>worthless</th>
<th>poor</th>
<th>not for me</th>
<th>weak</th>
<th>not appealing</th>
<th>not attractive</th>
<th>not likable</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
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<td>(7)</td>
<td>(7)</td>
<td>(7)</td>
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<td>(7)</td>
</tr>
</tbody>
</table>

interesting  good  positive  useful  valuable  outstanding  for me  strong  appealing  attractive  likable
2. I feel that that my **character** in the videogame was...

<table>
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<tr>
<th>boring</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>interesting</th>
</tr>
</thead>
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<tr>
<td>bad</td>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>good</td>
</tr>
<tr>
<td>negative</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>positive</td>
</tr>
<tr>
<td>useless</td>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>useful</td>
</tr>
<tr>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
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<td>(3)</td>
<td>(4)</td>
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<td>(6)</td>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>for me</td>
</tr>
<tr>
<td>weak</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>strong</td>
</tr>
<tr>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>appealing</td>
</tr>
<tr>
<td>not attractive</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>attractive</td>
</tr>
<tr>
<td>not likable</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>likable</td>
</tr>
</tbody>
</table>

For the following scale please circle the number that best indicates how you feel about the video game. For example, 1 = relaxed, 7 = stimulated.

3. I felt that during the **game** I was...

<table>
<thead>
<tr>
<th>relaxed</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>stimulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>calm</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>excited</td>
</tr>
<tr>
<td>sluggish</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>frenzied</td>
</tr>
<tr>
<td>dull</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>jittery</td>
</tr>
<tr>
<td>sleepy</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>wide-awake</td>
</tr>
<tr>
<td>unaroused</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>aroused</td>
</tr>
</tbody>
</table>
Please answer the following question by circling the number (from 1 to 7) that best describes your feeling.

4. How difficult was this game?
   1  2  3  4  5  6  7
   Easy  Difficult

5. How enjoyable was this game?
   1  2  3  4  5  6  7
   Not Enjoyable

6. How frustrating was this game?
   1  2  3  4  5  6  7
   Not Frustrating

7. How exciting was this game?
   1  2  3  4  5  6  7
   Not Exciting

8. How fast was the action of this game?
   1  2  3  4  5  6  7
   Slow Action

9. How violent was the content of this game?
   1  2  3  4  5  6  7
   No Violent Content

10. How violent were the graphics of this game?
    1  2  3  4  5  6  7
    No Violent Graphics
11. The following questions are in reference to this game or any other version of this game. Please circle “yes” or “no” where appropriate.

   a. Have you ever heard of this game before?
      Yes  No
   b. Have you ever played this game before?
      Yes  No
   c. Do you own this game?
      Yes  No
   d. Do you know someone who owns this game?
      Yes  No
   e. If you have played this game, have you beaten / completed it?
      Yes  No
   f. Did you want to quit playing this game at any point today?
      Yes  No
   g. If the answer to the question above was “yes” and you did want to quit playing at some point, then please write down the approximate number of minutes into game play that you wanted to quit playing: ___ minutes.

Finally, we would like to answer a few questions about yourself.

12. What is your major? ________________________________

13. What year/class are you in school?
   ______ freshman ______ sophomore ______ junior ______ senior
   ______ graduate student ______ Other (explain) __________________________

14. Are you a current full-time student ______ yes ______ no

15. Age? ______

16. Gender: ______ male ______ female

17. My ethnicity is. (Please Circle the Number)
   (1) Asian, Asian-American, Pacific Islander
   (2) Black or African-American
   (3) Hispanic or Latino
   (4) White, Caucasian, European, not Hispanic
   (5) American Indian or Native American
   (6) Other (write in): __________________________

Figure 1: Pilot Test Study
Thank you for participating in this survey!

School of Communication
Ohio State University

Please answer each question to the best of your ability. You will be guaranteed anonymity; and please do not write your name on the questionnaire. We would like to know some information concerning your background. Please be as specific as possible when you give your answers. As previously mentioned, your answers are anonymous.

The following questions deal with your beliefs about the way the world works. Using the scale that follows, please circle the number that best describes how you feel about each statement.

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

30a. Do you play any home video games?  YES NO

If you answered no, please skip to “question #32.” If you answered yes, please complete the following section.

b. On average, how many hours per weekday do you play video games (include online, game console, and handheld playing)?

______ hours _______ minutes

c. On average, how many hours per weekend do you play video games (include online, game console, and handheld playing)?

______ hours _______ minutes

31. If you do play video games, online games, or computer games, please list your five favorite in the space provided.

1. _______________________________

2. _______________________________

3. _______________________________

4. _______________________________

5. _______________________________

32. How many hours do you spend with each of the following items on an average day? (simply round to the nearest hour).

a.) Television:

   Weekday: _______ hours per day
   Weekend: _______ hours per day

b.) Internet:

   Weekday: _______ hours per day
   Weekend: _______ hours per day
Please Read.

Next we would like you to answer a few questions about your feelings toward the representations of racial minorities within the media.

33.) Please respond to the following questions on how you feel that African Americans are treated within the following media categories.

<table>
<thead>
<tr>
<th></th>
<th>Very Negative</th>
<th>Very Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. TV news</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. TV drama</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. TV sitcoms</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. TV movies</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. Newspapers</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

34.) Please respond to the following questions on how accurately you feel African Americans are depicted in the following media categories.

<table>
<thead>
<tr>
<th></th>
<th>Not Accurate</th>
<th>Very Accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. TV news</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. TV drama</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. TV sitcoms</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. TV movies</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. Newspapers</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

35.) Please circle the number that best indicates how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a clear sense of my ethnic background</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I am happy that I am a member of the ethnic group I belong to.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I have a strong sense of belonging to my own ethnic group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I have a lot of pride in my ethnic group and its accomplishments.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I feel a strong attachment to my ethnic group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
36.) Please respond to the following question on how accurately you feel towards your contact/relationships have been with African-Americans. The term relationship here can refer to any friend, acquaintance, neighbor, associate, etc...

<table>
<thead>
<tr>
<th>Question</th>
<th>Not/Close Pleasant</th>
<th>Very Close/Pleasant</th>
</tr>
</thead>
<tbody>
<tr>
<td>How close do you feel to the one African-American person with whom you have the closest relationship to?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
<tr>
<td>How pleasant, in general has your contact been with African-Americans?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: Pretest Survey
Grand Theft Auto III

You are a small time thug, who was double crossed by your girlfriend while robbing a bank. You have just escaped from jail and must do random missions in order to make money and find your girlfriend.

Below are three missions that will appear on your map screen within the game. The letters indicate missions that you may freely accept.

Mission “J”
- Drive a car with a dead body in the trunk to the car crusher. However, certain individuals will try to stop you along the way.

Mission “T”
- Pick up extortion (protection) money from an alley in liberty city. However, a rival syndicate is waiting to ambush you. Get the money and fight/shoot your way out.

Mission “Pay Phone” (Blue Blip on map)
- Pick up an Ice Cream truck wired with explosives to a rival syndicates area, when these individuals approach the truck, blow it up!

Please note that these are only explanations of the way the mission can occur. You may play and do whatever you like within the game. You do NOT have to complete any missions, just play for 15 minutes. Thank You

Figure 3: Story Line sheet for Grand Theft Auto: III
**Grand Theft Auto: San Andreas**

You are a small time thug, who has just come home to Los Santos for your brother’s funeral. Things are in such disarray that you decide to stick around and help sort things out, while searching for your brother’s killers.

Below are three missions that will appear on your map screen within the game. The letters indicate missions that you may freely accept.

**Mission “S”**
- You must save Sweet (your other brother) and his girlfriend from rival gang members and escort them to safety.

**Mission “BS”**
- Pick up “OG Loc” from jail, then help him chase down an associate who stole from him. Catch and kill this person (Chase him down with the motorcycle).

**Mission “R”**
- Help Ryder steal merchandise/guns from a person’s home, while this person sleeps. Be very quiet so as not to awake the home owner.

Please note that these are only explanations of the way the mission can occur. You may play and do whatever you like within the game. You do NOT have to complete any missions, just play for 15 minutes. Thank You

Figure 4: Story line sheet for *Grand Theft Auto: San Andreas*
Post-Test Questionnaire:

1.) Please indicate the extent to which you agree or disagree with each of the following mood statements by circling the number that best describes how you feel:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel furious.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel willful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel aggravated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel tender.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel stormy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel polite.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel disconcerted.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel like hanging on a table.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel irritated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel frustrated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel kindly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel unsociable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel outraged.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel agreeable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel angry.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel offended.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel disgusted.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel tame.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel like I’m about to explode.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel friendly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel understanding.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel amiable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel mad.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel mean.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel bitter.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel burned up.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel like yelling at somebody.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel cooperative.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel like swearing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel cruel.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel good-natured.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel disagreeable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel enraged.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel sympathetic.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel vexed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 5: 35-item Affective measure
Please stop, open the door and wait for the researcher to come into the room.

Turn towards the computer to complete Picture/Word Association Task...

Read the directions carefully, then turn back to this survey and finish completing the items.

2.) Please read the following scenarios and choose how you would respond in each situation. Please circle only one choice.

You are the judge in a case in which the jury has convicted the defendant of second-degree murder. This crime involves intentional, but not premeditated, killing of another person. Assuming you have the authority to give any of the following sentences, which sentence would you give in this case?

(a) Life in prison
(b) 30 Years
(c) 20 Years
(d) 10 Years
(e) Probation

You are the judge in a case in which they jury had convicted the defendant of aggravated kidnapping. This crime involves a serious and planned kidnapping by a non-family member. Assuming you have the authority to give any of the following sentences, which sentence would you give in this case?

(a) Life in prison
(b) 30 Years
(c) 20 Years
(d) 10 Years
(e) Probation

You are the judge in a case in which the jury has convicted the defendant of aggravated robbery. This crime involves a violent act of robbery using a weapon. Assuming you have the authority to give any of the following sentences, which sentence would you give in this case?

(a) Life in prison
(b) 30 Years
(c) 20 Years
(d) 10 Years
(e) Probation
3. Please read the following scenarios and choose how you would respond in each situation. Please circle only one choice.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Options</th>
</tr>
</thead>
</table>
| You are a baseball player and you are up to bat. The pitcher deliberately hits you with a hundred-mile-an-hour fastball. What do you do? | (a) Immediately start fighting with the player  
(b) Go up to that player and yell in his/her face  
(c) Yell at that player from afar  
(d) Ask the umpire to penalize that player  
(e) Walk to first base and avoid responding to the pitcher |
| You are a basketball player and you are going up for a lay-up. As you are in the air, a player on the other team purposely grabs your legs and smacks you down on the court floor. What do you do? | (a) Immediately start fighting with the player  
(b) Go up to that player and yell in his/her face  
(c) Yell at that player from afar  
(d) Ask the referee to penalize that player  
(e) Get up and walk directly to the foul line without any confrontation |
| You are a football player and you just made a nice run down the field. After the play is over, a player on the other team intentionally tackles you from behind. What do you do? | (a) Immediately start fighting with the player  
(b) Go up to that player and yell in his/her face  
(c) Yell at that player from afar  
(d) Ask the referee to penalize that player  
(e) Get up and immediately walk back to the huddle. |
7. Please read the following scenarios and after each one answer the questions about how you would want to react in these situations. For all of these scenarios you should assume that the other people mentioned are of your same sex.

a. You are standing at the counter waiting for a drink you ordered. Someone shoulders you roughly out of the way and gives you a dirty look.

How likely is it that you would want to . . .

<table>
<thead>
<tr>
<th></th>
<th>Not at All Likely</th>
<th>Somewhat Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>. . . become angry?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . express to him/her that you are angry?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . be rude to him/her?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
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<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . threaten him/her if the situation were not resolved?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . . use physical force?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. You are walking across a busy intersection, and it is clear that you have the right of way. Someone in a car, who is trying to turn right, almost hits you. The driver brakes in the middle of the street and yells out at you, “You stupid idiot.” The driver then pulls over in a parking spot a few meters away.

How likely is it that you would want to . . .

<table>
<thead>
<tr>
<th></th>
<th>Not at All Likely</th>
<th>Somewhat Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>. . . become angry?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
c. You are at the movies with your friends and some teenagers behind you keep kicking the back of your seat. One of your friends gives them a dirty look but they continue kicking your seat even harder.

How likely is it that you would want to . . .

<table>
<thead>
<tr>
<th></th>
<th>Not at All Likely</th>
<th>Somewhat Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>. . . become angry?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
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</tr>
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</tr>
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<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>. . . use physical force?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d. You are at work trying to finish a job. You see your co-worker, who was supposed to be helping you, on the telephone. That co-worker has been talking for over half an hour with a friend. You ask him/her for some help but he/she tells you to get lost.

How likely is it that you would want to . . .

<table>
<thead>
<tr>
<th></th>
<th>Not at All Likely</th>
<th>Somewhat Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>. . . become angry?</td>
<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td>1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6: Aggressive Cognitive Scenarios
4.) Please circle number that best indicates how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt the characters in this game were interesting</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>I identified with the character I was playing in this game</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>I was interested in my character’s goals in this game</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>I like the character I was playing in this game</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>I felt like I needed to defeat all the opponents I encountered</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>Overcoming the opponent is important</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>I had to overcome the other characters in the game in order to meet my character’s goals</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
<tr>
<td>I had to overcome the other characters in the game in order to protect the health of my character</td>
<td>1..................</td>
<td>2..................</td>
<td>3..................</td>
</tr>
</tbody>
</table>

5.) Please answer the following question by circling the number (from 1 to 7) that best describes your feeling.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not At All</th>
<th>Very Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>How strongly did you identify with (or relate to) your character in the videogame?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
</tbody>
</table>

6.) Please answer the following question by circling the number (from 1 to 7 that best describes your feeling.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not At All</th>
<th>Very Similar</th>
</tr>
</thead>
<tbody>
<tr>
<td>How similar are you to your character in the videogame on overall lifestyle?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
<tr>
<td>How similar are you to your character in the videogame on cultural background?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
<tr>
<td>How similar are you to your character in the videogame on dress?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
<tr>
<td>How similar are you to your character in the videogame on appearance?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
<tr>
<td>How similar are you to your character in the videogame on basic values?</td>
<td>1........2........3........4........5........6........7</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7: Identification Items
8.) The following questions are in reference to this game or any other version of this game. Please circle “yes” or “no” where appropriate.

a. Have you ever heard of this game before?  Yes  No
b. Have you ever played this game before?  Yes  No
c. Do you own this game?  Yes  No
d. Do you know someone who owns this game?  Yes  No
e. If you have played this game, have you beaten / completed it?  Yes  No
f. Did you want to quit playing this game at any point today?  Yes  No
g. If the answer to the question above was “yes” and you did want to quit playing at some point, then please write down the approximate number of minutes into game play that you wanted to quit playing: _____ minutes.

9.) Please indicate how you would rate your level of expertise regarding the following:

<table>
<thead>
<tr>
<th></th>
<th>Not at All Expertly</th>
<th>Somewhat Expertly</th>
<th>Very Expertly</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.) The way you have played this game today.</td>
<td>1........2.........3........4........5........6........7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.) The way you have played this video game in the past.</td>
<td>1........2.........3........4........5........6........7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10.) Please indicate how much effort you feel that you put into trying to play the video game well today:

<table>
<thead>
<tr>
<th>How much effort do you feel that you put into trying to play the video game well?</th>
<th>Not much Effort</th>
<th>Some Effort</th>
<th>A lot of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1........2........3........4........5........6........7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Finally, we would like to answer a few questions about yourself.

11. What is your major? ________________________________

12. What year/class are you in school?
   ______ freshman ______ sophomore ______ junior ______ senior
   ______ graduate student ______ Other (explain) ___________________________

13. Are you a current full-time student ______ yes ______ no

14. Age? _______

15. Gender: ______ male ______ female

16. My ethnicity is...(Please Circle the Number)
   (1) Asian, Asian-American, Pacific Islander
   (2) Black or African-American
   (3) Hispanic or Latino
   (4) White, Caucasian, European, not Hispanic
   (5) American Indian or Native American
   (6) Other (write in): ________________________________

Figure 8: Game Play questions & demographic questions
Figure 9: Hypothesis 1: Implicit Association Task.
Figure 10: Exploratory analysis, positive affect.
Figure 11: Interaction between participant race by condition for perceived similarity
Figure 12: IAT response times when controlling for previous game-play.