Do the Gender and Race of Video Game Characters Matter? The Effects of Violent Game Playing on Implicit Stereotyping and Aggressive Behavior

by

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This dissertation is dedicated to my mother

and my father in heaven.

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ABSTRACT

Within the framework of social cognitive theories and current models of media priming, two experiments tested hypotheses regarding video game playing, implicit stereotyping, and a behavioral manifestation of aggression. In these two experiments, race and gender of the video game characters played served as a media prime that was expected to affect the players' attitudes and behavior. In Experiment 1, playing a violent male (as opposed to a violent female) avatar led to a stronger implicit association of males with violence and directly primed aggressive behavior. No significant relation was found between the activation of the implicit gender-violence association and aggressive behavior. In Experiment 2, playing a violent Black (as opposed to a violent White) avatar led to a stronger implicit association of Blacks with violence and directly primed aggressive behavior. A significant relation was found between the activation of the implicit race-violence association and aggressive behavior. Furthermore, mediation analysis showed that implicit racial stereotyping significantly mediated the effect of racial priming induced by playing a violent Black avatar on subsequent aggression. These results provide unique insight into the media priming literature by demonstrating experimental evidence for the cognitive mechanisms underlying media priming effects. More specifically, the implicit associations prompted by a media prime were shown to be actually translated into the behavior indicative of that activated stereotype. Implications for stereotyping processes and aggressive outcomes are discussed.

Chapter I

Introduction: Video Game Violence, Violent Stereotypes, & Aggression

Over the past 50 years the power of the mass media to influence behavior has been demonstrated in a number of ways – in affecting political behavior, in affecting academic and intellectual behavior, in affecting health-related behavior, and in affecting social behavior (e.g., Bandura, 2002; Levine & Harrison, 2009; Singer & Singer, 2001;Tewksbury & Scheufele, 2009). One of the demonstrated effects that has generated the most social concern is the effect of media violence to stimulate actual violent behavior (Anderson et al., 2003). The recent prominence of violent video games in most children's lives (Singer & Singer, 2001) provides new reasons for concern. Furthermore, many of the parameters of the effects of media violence have not been sufficiently explored. One of these is the extent to which viewers' racial and gender stereotypes influence the effects of playing violent video games or are affected by playing the violent games.

Previous media effects research has focused exclusively on stereotypes embedded in traditional media, such as television, movies, or magazines. Preliminary but noteworthy findings revealed in a scant handful of studies suggest that the negative stereotypical representations of gender and racial groups in traditional media persist in video games, too (e.g., Beasley & Standley, 2002; Dietz, 1998). For example, in many video games, female characters are consistently depicted as helpless victims and/or highly sexualized figures. On the other hand, male characters are generally portrayed as

being physically more aggressive and violent than females, and are depicted as perpetrators of violence, rather than victims of violence (Beasley & Standley, 2002; Dietz, 1998; Downs and Smith, 2005; Provenzo, 1991). One recent study provides evidence for this description of male characters by demonstrating that in popular gaming magazines 83% of male video game characters are advertised as having violent and hyper-masculine traits (Dill & Thill, 2007).

Even fewer studies have examined racial stereotyping in video games. The paucity of documented research on racial stereotypes may be attributed to relative absence of minority groups in video games. Research shows that the majority of heroes in video games are White males. When non-White males are present, they are generally portrayed in stereotypical roles (Brand, Knight, & Majewski, 2003; Children Now, 2001). African American and Latino men are more likely to be portrayed as athletes or aggressors than their White counterparts. In sports games, approximately 80% of Black male characters displayed physical and verbal aggression, whereas only 57% of White characters did so (Children Now, 2001). Interestingly, while Black *men* are presented as agents of violence, Black *women* are portrayed as victims of violence. In Children Now's (2001) content analysis, nearly 90% of African American females were targets of violence in the 134 games that were analyzed. Their victimization rate outnumbered that of White females.

Overall, these findings suggest that the negative stereotyping and marginalization of women and minority groups in traditional media continue to occur within the realm of video games. It is certainly plausible that exposure to consistent stereotypes linking aggression and violence to a specific gender (i.e., males, not females) and to certain racial

groups (i.e., Blacks, more than Whites) has the potential to bias players' attitudes and perceptions in the direction of the stereotypes characteristic of video games. Nonetheless, video game research on aggression has not addressed violent stereotypes and their psychological and behavioral effects on video game users. This is a surprising gap in the literature, especially given the prevalence of violent themes coupled with victimization and sexual objectification of women and the characterization of Black males as perpetrators of violence in video games. The current dissertation attempts to fill this gap by exploring how exposure to stereotypical portrayals of differently gendered and raced characters affects the players' attitudes and behavior. Furthermore, this thesis intends to extend existing models of media priming by investigating the cognitive mechanisms underlying the stereotyping process and its aggressive outcomes.

I focus on gender and racial stereotypes concerning aggression in particular, because aggressive personality traits often serve as a primary basis on which males and females, and members of some racial groups are differentiated and valued. Traditionally, males have been regarded as (and even been expected to be) powerful and aggressive, whereas women have been thought to lack these qualities, or to be likely to be more weak and peaceful than men. That is, aggression is typically perceived and even celebrated as a masculine trait rather than a feminine trait. With regard to racial stereotypes concerning aggression, African American males have long been perceived by Whites as being more violent and aggressive than other racial groups in our society (e.g., Dixon & Linz, 2000).

Adverse effects of violent video games on aggressive cognitions, arousal, and behavior are clearly established (Anderson et al., 2003). Still, how stereotypes related to violence influence such effects are not clear. Is there a meaningful empirical relation

between playing video games that contain stereotypical portrayals of men and women and the formation of gender-stereotyped attitudes? Does playing a violent male character influence the likelihood and intensity of subsequent aggressive behavior? How do racial cues present in violent video games influence the player's racial stereotypes concerning aggression? Does taking on the role of a particular race that is characteristically associated with violence and aggression (e.g., a Black shooter) intensify the harmful effects of violent video game playing on aggressive behavior? Two experimental studies have been designed to address these questions in this dissertation.

I begin by providing some possible theoretical explanations for the development of aggressive behavior and stereotypical attitudes within the framework of social cognitive theories. Next, I explain how mass media contribute to the activation of aggressive and stereotyped cognitions and their behavioral manifestations. The theories underlying these effects and the empirical evidence are drawn from both psychology and communication studies. Throughout my discussion, I maintain that the theories that connect exposure to traditional media like television to the development of aggressive and stereotyped behavior can also explain why the consumption of interactive forms of media like video games can elicit stereotyped attitudes and aggressive actions.

Chapter II

Theoretical Views of Social Behavior

Person Versus Situation

There have been two different approaches to understanding human social behavior – one emphasizes factors within the person and the other emphasizes situational factors. Most personality researchers affirm that while internal factors such as attitudes and personality traits seldom predict precisely a specific action, they do better at predicting a person's average behavior across many situations. Their claim also includes that people choose their situations, that these choices reflect personality (e.g., an introvert may choose to work in a library), and that there are no other psychological variables which predict behavior more strongly than personality traits. In contrast, other researchers stress the importance of situational factors in affecting behavior.

It would be meaningless to attribute to either personal or situational causes as the explanation for behavior or psychological events because situational factors sometimes prove to be the more powerful determinants of behavior while personal factors prove to be the more powerful at other times. In other words, human behavior can be best understood by interaction of the state of the person and the situation. An array of factors including biological predispositions (e.g., genetic, hormonal), personality traits (e.g., aggressive tendencies), physiological states (e.g., current moods, arousal level), as well as environmental/cultural influences (e.g., learning, parenting) all combine to shape human behavior. Therefore, when studying human behavior, it is necessary that we consider the

relative importance of various factors in different cases. As Anderson and Huesmann (2007) argue, "All social behavior, including aggression, is the result of the convergence of both types of factors. Situational factors (that is, instigators or inhibitors of aggression) and personalogical factors (that is, propensity or preparedness to aggress) combine in complex ways to determine what type of behavior will emerge" (p.262). While not disregarding the importance of immediately impinging situational instigators, the social cognitive psychologists stress the person's cognitive structures (e.g., schemas, scripts, social representations) and his or her construal of the situation in predicting the person's behavior.

Innate Predispositions Versus Acquired Predispositions

Theoretical explanations accounting for why aggressive behavior occurs can be illuminated by two different theoretical approaches - instinct versus learning theories. Instinct theory proposes that aggressive predispositions are determined at birth, while learning theories stress that humans learn to behave aggressively as they develop. Evolutionary theory integrates these two approaches to account for aggressive behavior. According to Baumeister and Bushman (2008), most aggression scholars tend to favor a combination of nature and nurture as an explanation for human aggression. In other words, nature and nurture work together to produce, control, and change levels of aggressive behavior. The interactionist approach of psychology proposes that social factors from one's environment and internal mechanisms modulate aggression.

In the 1980s biological psychologists argued that much of human behavior was a function of innate biological mechanisms including genetic, hormonal, and neurophysiological influences. (e.g., Lagerspetz & Sandnabba, 1982; Nachson & Denno,

1987; Rushton et al., 1986). The two recognized neurochemical substances influencing aggression are serotonin (also known as the "feel good" neurotransmitter) and testosterone. Experimental studies have shown a causal link between low levels of serotonin and aggressive responses in both animals and humans (Berman, McCloskey, Fanning, Schumacher, & Coccaro, 2009; Cherek & Lane, 2001; Miczek, Mirsky, Carey, DeBold, & Raine, 1994; Virkkunen, De Jong, Bartko, & Linnolia, 1989). This is because if people don't have enough serotonin, they feel bad and are more likely to behave aggressively.

Testosterone, which is the male sex hormone, may provide another biological marker of aggressive behavior (in the sense that testosterone level can affect aggression, but as discussed later, the effect can also be reciprocal). Meta-analytic research has found that the level of testosterone is positively correlated with various measures of human aggression (Book et al., 2002). However, there is also evidence of environmental stimuli influencing current levels of testosterone, which makes it somewhat difficult to accurately portray the effects of testosterone on aggressive behavior (Mazur & Booth, 1998; Mazur, Susman, & Edelbrock, 1997). Although the direction is not clear, we can at least infer from previous studies that testosterone levels and aggressive behavior mutually influence each other.

In addition, the studies of twins (e.g., Coie & Dodge, 1998; Miles & Carey, 1997; Tuvblad, Raine, Zheng, & Baker, 2009) point to some potential hereditability of aggressive tendencies. For example, several twin studies conducted over the years show that when raised apart from birth, monozygotic twins had higher correlations with adulthood aggression than fraternal twins (Gottesman et al., 1984; Tellegen et al., 1988).

However, some researchers argue that the size of the estimated correlation tends to decrease when specific behaviors, rather than general behaviors, are measured (Miles & Carey, 1997). Genotype abnormalities also lend support to aggression being a function of biological factors. Caspi et al. (2002) explored the role of MAOA (monoamine oxidase activity) gene activity in maltreated boys. MAOA metabolizes neurotransmitters like dopamine (dopamine increases enjoyment and positive reinforcement feelings in the brain) and renders them inactive. Caspi et al. (2002) show that genetic deficiencies in MAOA activity are linked with aggression in humans. This study reported that maltreated children with low MAOA activity grew up to be more aggressive than maltreated children without the gene or children with the gene but without any maltreated experience.

Taken together, it seems important to recognize that genetic predispositions are not the sole cause of human behavior. Although genes and hormones can be regarded as a starting point for predisposing a person to behave aggressively, there are many other important factors working together to contribute to the person's aggressive behavior.

Another line of thinking underlying innate argument comes from Sigmund Freud's psychoanalytic theory. Freud proposed that humans are built with certain drives: the life (eros) and death (thanatos) drives. In order to preserve life, humans direct aggression and other destructive urges towards others rather than the self. Lorenz (1966) expanded on Freud's idea and proposed a hydraulic model of anger. This model assumes that human aggression is mainly due to the escalated or pent-up aggressive urges and other negative emotions, such as anger and tension, which must be released as aggressive behavior so that the person does not explode. However, no scientific evidence has been

found to support this cathartic hypothesis. In fact, several empirical studies demonstrate that venting increases, rather than decreases aggressive feelings and behavior (Bushman, 2002; Bushman, Baumeister, & Phillips, 2001).

Scholars taking learning perspectives (including operant and classical conditioning as well as social learning) posit that human behavior is not hardwired, as instinct and biological theorists propose, but rather that aggressive behavior is learned as humans develop through various social experiences. Bandura (1977), whose social learning theory is perhaps the most applicable to aggression, theorized that individuals learn aggressive behaviors (and the internalization associated with the learned behavior) by observing and imitating other people's behavior. Bandura argued that several factors serve as initiators of aggressive behavior, including elements that help maintain or shape aggressive behavior such as external reinforcement, punishment, and vicarious reinforcement (Bandura, 2003). While admitting that biological factors do play a role, Bandura (1983) maintained that these aspects only play out according to various social and cognitive factors. Aggressive behavior, then, can be learned through both observing the aggressive acts of others and seeing the rewards for consequences that the aggression brings. Not all models of aggressive behavior are equally influential: attractive models or models who are similar to the observer are more likely to be imitated (Bandura, 1986; 2003). Support for social learning theory in explaining aggression abounds, including his classic Bobo doll experiment and a great number of other studies examining violent media effects on aggression. Evidence exists in support of both biological and social learning theories, but not to the extent that one can be said to prevail over the other. The

evolutionary theory of aggression seeks to bring the two theories together to include both nature and nurture in explaining aggressive behavior.

The "interactionist" approach of evolutionary psychology proposes that social factors from one's environment and internal mechanisms modulate aggression. In this sense, evolutionary theory combines both biological and evolutionary aspects with social and environmental factors that allow physiological adaptations to manifest (Buss & Duntely, 2006). Evolutionary theorists agree with many biological theorists that aggression was an adaptive trait that allowed humans to better survive and thus pass on their genes in reproduction. That is, aggressive human behavior is developed and passed down for generations as an evolved solution to adaptive problems (Buss & Duntley, 2006; Buss & Shackelford, 1997). Such problems include protecting and providing resources for one's offspring, taking resources from others, detering sexual infidelity, and securing mates, among other purposes.

Sometimes the environment literally determines what genes are turned on and off; the biochemical layer on the surface of genes known as the epigenome is responsible for activating genes, and an individual's environment can physically change the epigenome and affect whether genes – such as those that determine aggressiveness – are manifested or not (Bushman, 2010). Factors proposed by Bandura in his social learning theory, like rewards and punishments, are presumably part of this environment that shapes gene and other trait performances. Indeed, modern evolutionary theorists do not seem to deny the importance of biological predispositions and learning processes that can shape and regulate social cognitions. In other words, nature and nurture work together to produce, control, and change levels of aggression. By combining the "nature" element of biology

and the "nurture" element of social learning, the evolutionary theory of aggression integrates a variety of factors that influence aggression, providing a more multidimensional and complete picture.

Conditioning Versus Observational Learning

Classical conditioning first proposed by Pavlov posits that with time, a conditioned stimulus (an African American, for example) repeatedly paired with an unconditioned stimulus (e.g., danger, threat) could cause a person to respond aggressively against the conditioned stimulus. Based on the ideas of classical conditioning, aggressive behavior can be modeled as the formation of an association between a mental representation of a group and a representation of a trait or attribute. For example, formation of the stereotype "African American men are violent and dangerous" would be modeled as learning of an association between a representation of African American males and a representation of aggression and violence. Once this association is learned, encountering a Black man will tend to activate the idea of violence (and danger) and may result in increased likelihood of aggressive reaction against that Black man.

Operant conditioning theory focuses on behavioral consequences in understanding aggressive behavior. This theory assumes that human behavior is contingent upon the type of reinforcements and consequences following behavior (Skinner, 1950; Thorndike, 1913). Through reinforcement and punishment of aggressive behaviors, humans learn what actions are helpful or harmful. Thus, people are more likely to repeat their aggressive actions when they are rewarded than when they are punished. From a conditioning perspective then, the learning of behavior depends on stimuli that follow a consequence.

Observational learning is theorized to occur by observing and imitating others' behaviors. Bandura (1977; 1986) believes that children learn to behave aggressively by observing how their parents, friends, and media characters behave in certain situations and how they respond to the behavior. Based on Bandura's idea, Huesmann (1988) argued that aggressive scripts[1] develop as a result of observational and enactive learning in early childhood (Huesmann, 1988; Huesmann et al., 1984). The aggressive scripts acquired through observational and enactive learning can be stored in the child's memory and are used as guides for social behavior (Huesmann, 1988). For example, frequent observation and experience of violence (whether in real life or in mass media) in childhood may contribute to the formation of aggressive scripts which can make the child more prone to act aggressively, particularly when facing social conflicts or challenges. This is true especially when the child's aggressive scripts are successfully and repeatedly recalled and rehearsed (Huesmann, 1988). Thus, observational learning provides compelling basis for how children will behave and construe their own and others' behavior across a variety of situations (Huesmann, 1988).

[1] The term "script" was first coined by Abelson (1981) and later elaborated by Huesmann (1982; 1988). A detailed discussion about "scripts" is presented in Chapter III.

Chapter III

Aggression and Media Violence

Theoretical Views of Causes of Aggression

Psychologists specializing in aggression recognize that aggressive behavior is not caused by a single factor. Instead, they argue that aggressive behavior results from a complex interplay among multiple determinants including precipitating situational and predisposing personal factors (Anderson & Huesmann, 2007; Bushman & Huesmann, 2010). In the following section, I describe a number of situational factors that are believed to set the stage for aggressive actions. It is important to note that the likelihood (and intensity) of the aggressive outcomes prompted by various environmental causes may well depend on how individuals perceive and construe these aggression-stimulating situations. The individual differences in cognitive factors will also be discussed in the following section.

Precipitating situational instigators.

Provocation. Provocation is considered one of the most powerful instigators of human aggression in situational context (Anderson & Bushman, 2002; Berkowitz 1993). Any actions by others may trigger aggression especially if the actions contain malicious intent. Personal insults, threats to self-esteem, bullying, and other forms of verbal and physical aggression that are perceived as aversive may elicit aggressive reactions. Humans have innate tendency to reciprocate their behavior especially when they are

provoked by another person. As Baron (1977) explains, people are emotionally gratified by aggressing against those who provoke them.

Aggressive cues. Aggressive cues can be any objects that prime aggression-related thoughts or emotions in memory. Research on aggression has shown that the mere presence of aggressive cues (e.g., guns) can increase aggressive behavior especially among angered people (Berkowitz & LePage, 1967). In addition, numerous studies have demonstrated that observation of violence in the mass media can serve as the priming cues (e.g., Anderson & Dill, 2000; Bushman, 1998; Bushman & Geen, 1990; Josephson, 1987).

Frustration. According to Berkowitz (1983; 1993), frustration can serve as an instigating actor leading to aggressive tendencies, particularly if a frustrating event is perceived as aversive or unpleasant. Once a negative emotion has been induced by frustration, similarly valanced negative thoughts, feelings, and physiological responses arise, resulting in either flight or flight tendencies. Berkowitz (1983) believes that the flight tendency gives rise to fear which inhibits aggression, while fight tendency gives rise to anger which increases the likelihood that aggression will occur. However, not all frustrations are equally bothersome and not all frustrations automatically lead to aggression. As Berkowitz (1983) argues, an unexpected frustration is more apt to provoke an aggressive reaction than an anticipated interference because the former is usually much more unpleasant. Further, the presence of aggressive cues can increase the likelihood of aversive conditions leading to aggression (Berkowitz, 1993). For example, a person who is insulted by someone in the presence of a gun is likely to react aggressively toward the provocateur (Berkowitz & LePage, 1967).

Pain and discomfort. Berkowitz (1983) proposed that any unpleasant stimulation (that even lacks social interaction) can generate instigation to aggression (Berkowitz, 1993). For example, unpleasantly high room temperatures can make us feel bad and susceptible to aggressive reaction. In fact, temperature is significantly associated with violent crime rates with hotter cities having higher crime rates than cooler cities, even after controlling for city-to-city differences in Southerness, population size, and socioeconomic status (Anderson, Dorr, DeNeve, & Flanagan, 2000). Other field studies comparing aggression rates in hotter vs. cooler time periods support this "heat hypothesis" (Anderson, 2001). One experimental study also demonstrated that acute aversive experiences, such as physical pain produced by immersing a hand in a bucket of ice water, can increase aggression (Berkowitz et al., 1981).

Other conditions that make us feel bad, such as loud noise (e.g., Gaur, 1988), offensive odor (e.g., Rotton & Frey, 1985), or crowding (e.g., Nijman & Rector, 1999), have been found to stimulate aggression. Thus, increased negative affect associated with unpleasant environmental conditions seems to increase the likelihood of aggressive inclinations. In addition to the mediating role of negative affect in facilitating aggression, cognitive bias produced by aversive events may also play a role. For example, a person who is negatively aroused by extremely hot temperature is likely to interpret ambiguous social interaction as having aggressive components because of the cognitive biases produced by the negative emotional state. This cognitive bias may be even more pronounced in aggression-eliciting situations, leading to more aggressive responses.

Alcohol. It has been found that consumption of alcohol exacerbates the impact of factors (e.g., provocation, frustration, and aggressive cues) that generally increase

aggressive behavior (Bushman, 1993; 1997). For example, one's response to provocation or aversive situations will be more violent when intoxicated than when sober. Bushman (in press) has provided several theoretical explanations for why alcohol increases aggression. Alcohol impairs neural functions that normally inhibit aggression (e.g., serotonin) and depletion in these neurotransmitters can lead to lack of control in restraining aggressive impulses. Bushman also explains that alcohol causes people to focus attention on the most salient cues in a situation and to not pay attention to more subtle cues (i.e., "myopic" effect). Thus, an insignificant provocation that would otherwise be unnoticed can prompt an intoxicated person to react aggressively because of the person's susceptibility to pay attention to the most hostile cues in a situation.

Perhaps more social psychologically relevant explanation for the effect of alcohol on aggression would be the expectancy theory (Bushman, in press). According to this theory, alcohol increases aggression because people expect it to do so. Drinking occasions are culturally agreed-on "time out" periods where people are not held responsible for their actions (McAndrew & Edgerton, 1969). Indeed, people often blame the alcohol intoxication for their aggressive behavior. Research studies testing the automaticity effect show that the link between alcohol and aggression is so strong that alcohol-related cues automatically increase aggressive thoughts and behavior, even in the absence of the pharmacological and expectancy effects of alcohol (e.g., Subra, Muller, Bègue, Bushman, & Delmas, in press).

Social rejection. The experience of being ignored and excluded is typically hurtful and distressing to people, and therefore can arouse negative feelings and attitudes. Humans have fundamental need to belong to social groups and be accepted by their

members. When this basic need is thwarted, the consequence can be devastating to one's self-esteem and self-worth. In addition, experimental studies have shown that social exclusion can cause decreased emotional sensitivity and hostile perceptions, which in turn lead to increased aggressive responses (e.g., DeWall & Baumeister, 2006; DeWall, Twenge, Gitter, & Baumeister, 2009; Warburton, Williams, & Cairns, 2006). These experimental findings suggest that social rejection may not directly cause aggression but may do so through various aggression-facilitating emotional and cognitive factors. An analysis of school shooters between 1995 and 2001 reported that 13 out of 15 shooters experienced social rejection (Leary, Kowalski, Smith, & Phillips, 2003).

Predisposing personal factors.

Trait aggressiveness. Social cognitive scholars conceptualize personality as a multifaceted human attribute. They suppose that both cognitive structures and emotional dispositions amount to a person's personality, which often interact with situational factors to predict behavior (Mischel, 1999). Thus, in a broad sense, personality can be viewed as the totality of an individual's cognitive, affective, and behavioral proclivities (Bandura, 1999 in handbook of personality by Pervin & John). Aggressive personality traits are considered one of the major personal factors that influence preparedness to aggress (Anderson & Huesmann, 2007). Whether learned through development or genetically predisposed, a person with extensive knowledge structures (e.g., schema and scripts) supporting aggression is likely to consistently make use of those knowledge structures across situations. The frequent use of aggressive scripts and other knowledge structures can make other aggression related concepts more readily accessible in memory and increase the likelihood that the person will selectively seek out environments (e.g.,

violent media, gang membership) involving violence and aggression. Such selective exposure to aggression-related external stimuli in turn can make the person more aggressive through increased susceptibility towards hostile attributional bias and normative judgments about aggression (Huesmann & Guerra, 1997), thereby inevitably repeating the vicious cycle of aggression (Dodge & Tomlin, 1997; Zelli & Huesmann, 1993). According to Huesmann and his colleagues (Huesmann, Eron, Lefkowitz, & Walder, 1984), aggression becomes a stable individual characteristic by a relatively young age and habitual aggressive tendencies tends to persist throughout adulthood.

Poor self-control. Poor self-control is another well-recognized personality factor that plays an important role in preparedness to aggress. Most people do not commit violent crimes even though they have experienced incidents increasing violent impulses such as frustration or provocation. According to Gottfredson and Hirschi (1990), violent criminals tend to be impulsive individuals with low self-control even in behaviors that are not against the law. Aggression starts when self-control stops.

Narcissism. Excessive self-love, the common trait of narcissism, is prone to causing hostile aggression, especially when the narcissistic person's favorable self-view is challenged (Bushman & Baumeister, 1998). Some features of narcissism include having grandiose ideas about oneself as superior or special, feeling entitled to preferential treatment, being willing to exploit others, and having low empathy for other people (Morf & Rhodewalt, 2001). Some scholars conceptualize these qualities of narcissism with inflated and unstable self-esteem, which has been liked to hostility (Rhodewalt & Morf, 1995; Wink, 1991; Kernis, 1993). According to Bushman and Baumeister (1998), narcissism entails greater emotional satisfaction than cognitive engagement: "Narcissists

care passionately about being superior to others, even if they are not yet convinced that they have achieved this superiority" (p.220). Thus, failure to establish sentiment of one's overall superiority and goodness might generate anger and rage, which might increase aggressive tendencies. Several studies have shown that narcissistic individuals respond with high levels of aggression when they receive an insulting or threatening evaluation. (Bushman & Baumeister, 1998; Thomaes, Bushman, Stegge, & Olthof , 2008).

Psychopathy. Psychopaths are callous and unsympathetic individuals who are mainly interested in obtaining their goals, regardless of whether they hurt others in the process (Blair et al., 2001; Van Baardewijk, Stegge, Bushman, & Vermeiren, 2009). It has been shown that psychopathic traits are strongly associated with aggression in both clinical and community samples (Dadds, Fraser, Frost, & Hawes, 2005; Frick, Cornell, Barry, Bodin, & Dane, 2003; Frick, O'Brien, Wootton, & McBurnett, 1994; Marsee, Silverthorn, & Frick, 2005). Unlike narcissism which is linked to reactive or hostile aggression, psychopathy is a personality trait that is linked to proactive instrumental aggression. Although the causes of psychopathy have not been clearly identified, some researchers regard psychopathy as a form of mental disease and believe that it is biologically determined at birth (Hare et al., 1990). Previous findings seemed to be in line with this view and have established a stable relationship between psychopathic traits and aggression. However, a more recent study has shown that although children high in psychopathic traits are indeed prone to act aggressively, such impact is dynamic and depends upon situational cues. This study showed that aggression can be attenuated in children with psychopathic tendencies if they are encouraged to be pay attention to their victims' pain and discomfort (Van Baardewijk et al., 2009). This finding suggests that

although there is no known medical cure for psychopathy, making distress cues more salient in an interpersonal relationship might be a potential intervention strategy for inhibiting violent reactions.

Other aggression-related beliefs. In addition to personality traits, other types of personal beliefs can predispose individuals to behave more or less aggressively. According to Bandura (1977), children with high levels of self-efficacy in successfully carrying out observed aggressive acts are more likely to opt for aggressive behaviors than children with low levels of self-efficacy. Huesmann and Guerra (1997) also argue that normative beliefs about aggression are another important cognitive mediator that significantly predicts future likelihood of aggressive behavior. If the child thinks that aggressive and violent action is a normal and socially appropriate way to solve or respond to conflict, the child's preparedness to aggress will be likely to increase. This is in part because of the cognitive justification that allows the child to regard his or her own behavior as being normal and even desirable (Huesmann, 1982). Research suggests that the major sources of such aggression-related beliefs in children are the family, peers, and cultural surroundings, including the mass media (Patterson et all., 1992; Huesmann & Kirwil, 2007).

Belief in catharsis. Cathartic belief is based on the hydraulic model of anger - if the accumulated anger is not vented by behaving aggressively or viewing violence, the angered person will presumably explode in an aggressive rage. This cathartic view has been widely supported and practiced by mass media and pop psychologists who encouraged angry people to vent their anger through various aggressive and violent activities (e.g., hitting a pillow or punching bag). Despite its prevalence and popularity,

catharsis theory seems to lack empirical support (e.g., Bushman, Baumeister, & Phillips, 2001; Geen & Quanty, 1977). In support of Bandura's (1973) moratorium on catharsis theory, several studies have demonstrated exactly the opposite effect on anger. For example, one study showed that people who hit the punching bag after reading pro-cathartic message subsequently became more aggressive than people who read the anti-cathartic message (Bushman, Baumeister, Stack, 1999). This finding suggests that even if people were led to believe in venting (i.e., that venting is an effective way to reduce anger), releasing anger through violent action does not reduce angry feelings. In fact, venting actually caused the angry people to aggress against not only provocateurs but also innocent bystanders (i.e., displaced aggression). One theoretical reason for this would be that venting anger keeps one's arousal level high and this heightened arousal can make the angry person more susceptible to aggressive and violent behavior (Zillman, 1979).

Predisposing cognitive factors.

Scripts. Huesmann's script theory (1982; 1988) is particularly useful in explaining why a child develops aggressive solutions to the problems they face and maintains his or her choice of aggression over time. Scripts can be understood as mental programs (e.g., a set of beliefs, expectations, behavioral tendencies, etc.) that are used as guides for social behavior and problem solving (Huesmann, 1988; 1998). The script theory posits that the choice of which script to enact is based upon how the child makes sense of the situation, and how appropriate the child feels in using a particular script for that situation, as well as what the anticipated consequences are upon enacting the script. The cognitive scripts develop as a result of observational and enactive learning in early

childhood (Bandura, 1973; Huesmann et al., 1984; Huesmann, 1988). Thus, frequent observation and experience of violence (whether in real life or in mass media) in early childhood may contribute to the formation of aggressive scripts which can make the child more susceptible to becoming an aggressive adult. This is true especially when the child's aggressive scripts are successfully and repeatedly recalled and rehearsed (Huesmann, 1988).

According to Huesmann's information processing model, the current arousal level and emotional states influence retrieval and evaluation of the scripts. A negatively aroused child's evaluation of any situational cues and/or interpersonal situation may be biased toward perceiving hostility, making the child's retrieval of aggressive script more likely. In support of this theory, research has shown that an aggressive child is more likely to activate aggressive scripts in the presence of aversive cues and utilize aggressive scripts to solve social problems (Graham & Hudley, 1994; Taylor & Gabriel,1989). Correspondingly, continuous stimulation and use of aggressive scripts will increase the availability of other aggression-laden expectations, interpretations, and decision making (Dodge & Crick, 1990), and possibility for the use of aggression in future behavior. This is because, as Huesmann and Miller (1994) explain:

> Once scripts are firmly established they may be automatically executed, and the child's responses may seem to be 'unthinking' even though they are the product of a complex set of cognitive processes. The more aggressive child, according to Huesmann (1988), is one who learns, retains, retrieves, and utilizes more aggressive script (p.161).

In brief, as the interpretational scripts the child brings to social situations entails more aggression, and as the enactment of the child's behavioral scripts are reinforced, the child's preparedness for aggression is also likely to increase.

Normative beliefs. Other cognitive schemas that are presumed to play an important role in influencing aggressive behavior are normative beliefs (Huesmann, 1988). Normative beliefs are defined as individualistic cognitive standards ("internalized proscriptsions") about the acceptability and appropriateness of a social behavior (Huesmann & Guerra, 1997). Although normative beliefs may seem analogous to perceived social norms, Huesmann (1997) makes clear that normative beliefs do not necessarily have to be consistent with the prevailing social norms to regulate one's behavior. This is mainly because normative beliefs entail the person's subjective judgment about what is right or wrong for himself/herself.

According to Huesmann's information processing model (1998), normative beliefs are used to interpret other's behaviors, to guide the search for aggressive scripts, and to filter out inappropriate scripts and behaviors. In this view, normative beliefs can be seen as cognitive processes through which aggressive scripts are monitored and controlled. Not surprisingly, aggressive children should have normative beliefs that are more approving and more accepting of aggression. However, engaging in aggressive behavior can also reinforce the child's knowledge structure that increasingly supports his/her cognitive approval of aggression (Huesmann, 1988). Thus, as the child carries out aggressive scripts that are consistent with his or her beliefs about aggression, the child will also be likely to evaluate given situations in light of his or her existing beliefs that aggressive ways of responding and solving problems are socially appropriate and desirable, leading to greater aggressive outcomes in future.

World views. World views (or world schemas) refer to what one perceives the world is like in general. Similar to other cognitions, one's belief about the world is

developed through observation and learning processes. People often rely on their own world views to evaluate situations they are in and make attributions about other people's intentions and behavior. Aggressive individuals tend to believe that the world is a mean place and perceive hostility in others when in fact, there is no hostility involved. Dodge (1980) and other researchers (e.g., Huesmann, 1998) suggest that this "hostile attributional bias" influences the retrieval and use of cognitive scripts. For example, an aggressive person is more likely to infer others' intentions based on his or her hostile world-schemas and to perceive hostility even in the absence of it. Of course, the person holding hostile attributional bias is more likely to be responsive toward aggressive situational cues. Some researchers maintain that these hostile interpretations and reactions can even become an automatic cognitive process (Bargh, 1989; Todorov & Bargh, 2002). Concisely, the hostile attribution biases characteristic of aggressive person can increase the propensity to perceive hostility and use aggressive scripts, which in turn can eventually promote aggressive responses across situations.

Stereotypes. A stereotype is broadly defined as "a cognitive structure that contains the perceiver's knowledge, beliefs, and expectations about a human group" (Hamilton & Trolier, 1986, p.133). People use stereotypes, because thinking about other people in terms of their social category membership, rather than as distinct individuals, helps them simplify the world (Allport, 1954). Stereotypes have important implications for social behavior because negative stereotypes about other people can influence not only our judgments and attitudes (i.e., prejudice), but also our behavior toward the stereotyped groups (i.e., discrimination). For example, people holding negative stereotypes concerning Black males (e.g., that they are violent and aggressive) will be

more likely to activate aggressive scripts and hostile emotions when they encounter a Black male while walking at night. The behavioral pattern of this person may also be likely to be based on his existing beliefs, which can generate unfriendly reactions toward the innocent target person.

Like other aggression-related cognitions (e.g., aggressive scripts, hostile world views, etc.), stereotypes can be thought to influence the selection and interpretation of other available information: Stereotypes influence which information is attended to, which information gets encoded, and how information is interpreted, such that people often notice instances that confirm their existing stereotype-based beliefs (Higgins & Bargh, 1987; Huesmann, 1988; Bodenhausen, 1988). Although a person is likely to seek instances or reasoning that confirm their existing stereotype-based beliefs, researchers argue that stereotypic beliefs and attitudes associated with social categories can be automatically activated in the mere presence of triggering stimulus (Fiske & Neuberg, 1990).

However, this notion of inevitableness of automatic stereotype activation has recently been challenged by several scholars who argue that stereotype activation is conditionally, rather than unconditionally, automatic. This suggests that the extent to which stereotyped beliefs are activated might depend upon the frequency and consistency of one's exposure to stereotypes, as well as one's existing level of prejudice (Bargh, 1999; Lepore & Brown, 1997). In addition to prejudice level, several other personal (e.g., motivation, mood state, attention, etc.), situational (e.g., presence of mirror or video camera), as well as biological (e.g., hormonal levels) variables are shown to moderate the

supposedly automatic nature of stereotype activation (Blair, 2002; Lepore & Brown, 2002; Livingston & Brewever, 2002; Macrae et al., 2002a).

How the Mass Media Exert Their Effects on Violent Behavior

Psychological theories that have emerged over the past few decades suggest that multiple factors, including both individual and situational characteristics, can produce violent behavioral consequences. Among them, exposure to media violence is considered an important predictor of violent behavior. The psychological processes through which exposure to media violence causes aggression can be explained by both immediate (but transient) and delayed (yet enduring) effects (Huesmann & Kirwil, 2007). Accordingly, this chapter will begin by introducing some of the theoretical explanations for why observing media, whether it be a single, brief or repeated exposure, contributes to the development of aggressive behavior. These theories include priming, short-term imitation, excitation transfer, social learning, and desensitization.

Short-term stimulating processes.

Priming. Priming theory explains relatively short-term underlying processes by which exposure to media violence can stimulate aggression. The logic of priming is based on cognitive and neuroscientific perspectives that describe human memory as an associative network of scripts or ideas representing semantically related thoughts, feelings, and behavioral tendencies (Berkowitz, 1989; 1990; Fisk & Talylor, 1984). Activation processes make these cognitively-linked concepts to be accessible for immediate use. Because these elements are associated with one another as a network, the entire network of information becomes activated once one related concept is primed. These primed or activated thoughts and emotions can aid in the processing and

interpretation of subsequently encountered situation or social information (Bushman, 1998).

The priming literature reveals that violent media content can prime or activate aggressive scripts in one's memory, and these aggressive scripts can in turn increase the likelihood of subsequent hostile response to certain situations, especially those involving interpersonal conflicts or frustration (Bargh & Pietromonaco, 1982). As a result of priming due to aggression-related stimuli, associations among aggressive thoughts, memories, and emotions are formed (i.e., aggressive network). As described earlier, Berkowitz's (1984; 1994; 1997) neo-associationistic model and Anderson and Bushmans' (Anderson, 1997; Bushman, 1998) GAM (General Aggression Model) explain many findings of the research on priming and media violence. Both models predict that media violence will temporarily increase aggressive thoughts and feelings (Anderson et al., 1996; Bushman, 1998; Bushman & Geen, 1990), as well as aggressive behaviors (Bushman, 1995; Josepshon, 1987), which all are assumed to fade with time.

Factors that make an aggressive network accessible include frequent use (e.g., habitual aggressive behavior) and/or priming (i.e., exposure to aggressive stimuli). Researchers argue that activation and processing of aggressive scripts may occur even without one's conscious awareness, "eventually mak[ing] them chronically accessible" (Huesmann & Kirwil, 2007, p. 549). Bushman (1995) attributes this increase in chronic accessibility to a "temporarily lowered threshold of activation" which makes the construct more easily accessible for at least a short period (p. 538).

Applied to the context of violent media, exposure to violent media characters can activate aggressive thoughts and emotions in viewers. Given that an activated network

influences individuals' perceptions and interpretations of their current experiences, their interpretations will likely be biased towards perceiving situations as being caused by aggression. The more often a person observes aggression in the media, the more likely it is for an aggressive network to be activated at any point in time. The repeated observation of violent media characters should facilitate automatic accessibility of aggression-linked cognitions due to the combined effects of frequent violence activation and decreased threshold level of activation. Thus, although priming effects are considered relatively fleeting compared to enduring social learning effects, because aggression-activated thoughts can become chronically accessible, violent media consumption should have a considerable cumulative impact on cognitive structures related to aggressive thoughts and feelings.

Media violence research offers empirical evidence that the mere presence of cues associated with violence (such as weapons) can trigger aggressive response (Anderson, Benjamin, & Bartholow, 1998; Berkowitz & LePage, 1967; Josephson, 1987). For example, Payne (2001) employed the Weapons Identification Task (WIT) to assess implicit racial stereotypes pertaining to violence. In this study, it was predicted that participants who are primed with White faces would make less mistakes in their identification of guns, compared to those primed with Black faces. This prediction was based on the assumption that primes related to groups associated with aggression (e.g., African Americans) would increase errors of misidentifying tools as weapons and decrease errors misidentifying weapons as tools. In support of his hypothesis, Payne (2001) found that a brief exposure to images of an object (i.e., tool or gun) immediately preceded by Black faces, as opposed to White faces, increased misidentification of the

object as a weapon. In another study, Josephson (1987) demonstrated that the presence of the walkie talkie has been shown to be a contributing factor to the activation of the aggressive networks of the characteristically aggressive boys.

Mimicry. Short-term imitation or mimicry explains why exposure to violent media immediately precipitates aggressive behavior especially among young children. Neurophysiological research on automatic imitation has revealed that humans have an innate tendency to mimic any behavior they observe (Hurley & Chaatter, 2004; Meltzoff & Moore, 2000; Rizzolatti, 2005). Applied to violent media, aggressive actions performed by the media heroes can be immediately mimicked by young children, especially if they perceive the observed model to be similar to themselves and if their modeled behavior is reinforced (Bandura, 1997). Unlike long-term observational learning, the short-term imitation can occur after a single observation of an action without elaborate cognitive processing (Bandura, 1997; Bushman & Huesmann, 2006).

Emotional activation & excitation transfer. Another reason that exposure to media violence can temporarily increase aggression relates to arousal and excitation transfer. Excitation transfer is based on the idea that physiological arousal dissipates slowly and if two arousing events are separated in the interval of short amount of time, some of the arousal caused by the first event may transfer (or be misattributed) to the second event (Zillmann, 1988). In general, observing violent media creates a sense of excitement in most people, and this emotional arousal can induce different types of physiological responses, such as increased heart rate, skin's conductance of electricity (Huesmann & Kirwil, 2007). As in the priming situation, this arousal can evoke aggressive behavior, particularly when a person experiences negative emotions (e.g., frustration or anger)

during or immediately after viewing violent media (Berkowitz, 1983). Furthermore, if a person mistakenly attributes his or her heightened arousal not to watching violent media, but to provocation by someone else or some other incident, the aroused person's subsequent reaction toward the other person or other incident will involve antagonistic attitudes and behavior (e.g., Bryant & Zillman, 1979; Zillman, Bryant, Cominsky, & Medoff, 1981).

In addition, arousal from an irrelevant source is believed to intensify the dominant action tendency in progress for the short term (Geen & O'Neal, 1969). Thus, arousal by violent media may cause the aggressive child to behave even more aggressively afterwards. These hostile reactions are thought to erupt immediately after violence viewing and tend to last only a brief period of time (Huesmann & Kirwil, 2007). However, as Anderson and Bushman (2001) argue, "Even after the arousal has dissipated, the individual may remain potentially aggressive for as long as the self-generated label of "angry" persists" (p.39).

A number of experimental studies have revealed that emotionally or physiologically aroused individuals are especially prone to be aggressively stimulated by violent scenes. For example, Green and O'Neal (1969) showed that participants who had seen violent film, as opposed to those who had seen nonviolent film, shocked (with loud noise) another participant significantly more intensely. Anderson (1997) and Bushman (1998) also showed that exposure to violent movies increased aggressive thoughts and emotions. As with the short-term changes in aggressive behavior, the use of violent media as experimental stimuli in these randomized experiments is thought to produce immediate but relatively transient short-term changes in attitudes and behavior.

Long term processes.

Observational learning of aggressive scripts for behavior. Unlike priming and arousal, whose effects are relatively fleeting, social learning theory posits specific mechanisms through which viewing violent media may increase aggression in the long run. One of the primary concepts in social cognitive theory is the notion of observation learning. The basic premise of observational learning is that human beings learn specific social behaviors not only through their own direct experiences, but also by observing the behaviors of others and the outcomes of those behaviors. (Bandura, 1977; 1986).

The observational learning is theorized to be strengthened or weakened, depending on whether the modeled behavior is demonstrably rewarded or punished. In social learning theory, such reinforcement works through inhibitory and disinhibitory processes. An inhibitory effect occurs when an observer sees the targeted behavior being punished, and a disinhibitory effect occurs when a person observes the targeted behavior being rewarded (Bryant & Thompson, 2002). This is because "people develop expectations about a situation and expectations for outcomes of their behavior before they actually encounter the situation" (Baranowski, Perry, & Parecel, 1997, p.162). Thus, people will expect similar consequences for performing the observed behavior, and these expectations will also likely influence their subsequent behavior. This suggests that children watching violent television may develop aggressive patterns of behavior mirroring those of violent characters as the children both observe and mimic the characters' violent acts, and children's violent behaviors are further strengthened if observed violence is depicted as rewarded or lacking consequences (Bandura, 2002).

In applying Bandura's observational learning to scripts (see p.12 and p. 21-23 for a detailed description of scripts), Huesmann (1988; 1998) developed a cognitive processing model focusing particularly on attributions, rationales, and interpretations a child generates in order to account for actions of his- or her-self and others during social encounters (Huesmann & Eron, 1984; 1988; 1998). The central idea of Huesmann's model is that children acquire and develop their own social scripts to explain the behavior of others during social encounters. In turn, these self-generated interpretations influence children's responses to others and strategies to resolve conflicts in their ongoing social interactions. Concisely, the process of learning a script begins with "evaluation of the social situation and ends with the decision to follow a particular script for behaving" (Bushman & Huesmann, 2010).

According to Huemsann, "a script serves as a guide for behavior by laying out the sequence of events that one believes are likely to happen and the behaviors that one believes are possible or appropriate for a particular situation" (1998, p. 80). Huesmann's model provides a detailed explanation of how an individual develops aggressive problem solving behavior through a four-step sequential process. The four steps involve perception of environmental cues, activation of retrieved cues, evaluation of scripts, and interpretation of environmental responses (Huesmann, 1998). Aggressive children have more extensive aggressive scripts than nonaggressive children and thus are more likely to acquire and utilize similarly aggressive scripts (because of they are more easily accessible and applicable in their memory) in their responses to others. Thus, aggressive children will seek out environments that are consistent with their aggressive scripts (violent media, aggressive peers, opportunities to use aggression, etc.)

It is also noted that the maintenance of an aggressive script depends upon how frequently and competently the child rehearses it. Research in cognitive psychology has shown that rehearsal of observed information enhances its connectedness in memory, thereby making it more accessible (Klatzky, 1980). Thus, frequent enactment of aggressive scripts (even through fantasizing) should make its retrieval more likely, reinforcing aggressive behavior (Huesmann, 1986; Huesmann & Eron, 1984). Huesmann also contends that once in a place, aggressive scripts are resistant to change, and therefore chronically influence aggressive behavior throughout development in a similar fashion.

Based on Huesmann's model of observational learning of scripts, it can be theorized that extensive observation of violent media should lead to encoding of aggressive scripts which in turn can provide detailed information about the appropriateness of action given a particular situation. However, an activated script may not be used if it is evaluated as negative or inappropriate. Huesmann's script theory posits that whether or not children act out an aggressive script acquired through exposure to violent media depends on the content of the script in relation to the likelihood that enacting the script will lead to the desired consequences. It is believed that youth will primarily enact scripts that are evaluated as desirable (social response) as well as doable (filtered through self-efficacy). Further, as Huesmann argues, the more closely the child identifies with the violent media characters, and the more their violent actions are portrayed as appropriate, the more effectively the aggressive scripts will be encoded, retrieved, and carried out.

Throughout such observational learning and enactment of aggressive scripts, children not only monitor and learn aggressive behavior, but also internalize the values,

beliefs, and attitudes that are associated with the process and context of their learning (Huesmann, 1998). Accordingly, as Huesmann and Kirwil (2007) explain, this continuing of internalization of violence can result in "habitual modes of [aggressive] behavior," which further serve as cognitive guides for future aggressive behavior and problem solving (p. 552). This is an important ramification of learning from exposure to media violence because it pertains to cognitive schemas that are assumed to influence aggressive perceptions and behaviors. Consistent with this theorization, researchers examining a long-term relation between violent media and aggression uncovered that childhood exposure to television violence significantly predicted aggressive behavior in adulthood (e.g., crime records, traffic tickets, spouse abuse, child hitting, etc.), even when other relevant individual and social factors (e.g., education, early parenting, parent aggression, and SES) were statistically controlled (Eron, Huesmann, Lefkowitz, & Walder, 1972; Huesmann, Moise-Titus, Podolski, & Eron, 2003).

Observational learning of aggressive cognitions. One of the important ramifications of heavy viewing of media violence pertains to cognitive schemas that are assumed to influence aggressive perceptions and behaviors. These cognitive schemas are "normative belief about aggression" and "world views" (Huesmann & Guerra, 1997; Anderson & Huesmann, 2003; Huesmann & Kirwil, 2007, p.547 - 548). Through inferences drawn from observational learning and aggressive scripts, children can develop normative judgments about what is appropriate regarding violence, and how they perceive the world to be in general (world schemas). Like aggressive scripts, normative beliefs and world schemas are learned through observation (e.g., parents, peers, media characters, etc. (Huesmann & Guerra, 1997; Huesmann & Kirwil, 2007). A child who is

repeatedly exposed to and identifies with violent media characters who always achieve victory by means of violence may perceive the world to be a more violent place (i.e., "hostile attribution bias" or "mean world syndrome," Gerbner et al., 1980; Signorielli, 1990), and also may think that it is socially acceptable to resolve any encountered conflict with violence. Consequently, the child is more likely to deploy aggressive scripts in his social environments, increasing his predisposition toward aggressive behavior.

Emotional desensitization. Emotional desensitization is another psychological process with long-term implication for violent behavior, although the activation of negative emotion by itself relates to the short-term effects. Desensitization to media violence refers to "emotional habituation" or the gradual increase in emotional tolerance for violence. Some researchers suggest that the term "emotional habituation to violence" should also include the reduction of the unpleasant physiological responses that accompany observations of violence (Carnagey, Anderson & Bushman; 2007; Carnagey, Bushman, & Anderson, 2005). Thus, through repeatedly viewing violence over an extended period of time, a person becomes less affected by unpleasantness associated with violence, both emotionally and physiologically, and as a result, he or she may be less inhibited by violent social engagements in real life. According to researchers, the risk of consuming extensive amounts of violent media lies in the likelihood of having aggressive thoughts and acting aggressively increases when depictions of violence no longer cause an emotional distress (Huesmann et al., 2003). It should be noted that like precipitating effects of priming and excitation transfer, this desensitization also is exper

Chapter IV

Stereotypes

What is a Stereotype and Why Do People Stereotype Others?

Definition of stereotype. The stereotype has been a central concern in the realm of social and cognitive psychology since Gordon Allport (1954) contributed to the ideas that stereotyping and prejudice result from the inevitable human nature of categorizing. Building onto Allport's original insight, stereotypes have been defined by numerous scholars (e.g., Bodenhausen & Macrae, 1998; Brown, 1995; Devine, Rhodewalt, & Siemionko, 2008; Hamiton & Trolier, 1986; Hilton & von Hippel, 1996). For example, some researchers broadly define stereotype as "a cognitive structure that contains the perceiver's knowledge, beliefs, and expectations about a human group" (Hamilton & Trolier, 1986, p.133). Brown (1995) characterizes a stereotype as an inference drawn from the assignment of a person to a particular category. Other researchers similarly observe stereotypes as consisting of descriptive concepts that are associated with membership in a social category (Bodenhausen & Macrae, 1998; Devine, Rhodewalt, & Siemionko, 200?).What these definitions have in common is that they all conceptualize stereotypes as an element of cognitive or knowledge structure which involves fundamental human and societal functions (i.e., to construct a simplified and thus potentially biased representation of the world). Taken together, stereotype can be generally considered as a set of beliefs about the members of a social group resulting from thinking about people as members of social groups rather than as distinctive

individuals. More specifically, stereotypes affect the encoding and processing of information, particularly information pertaining to outgroups. (Hamilton & Troiler, 1986).

Stereotypes have important implications for understanding how people make sense of and react to each other, because activated stereotypes can influence the types of information people seek about the other people in the first place, how they process such information, and how these selective attention and biased interpretation processing influence their attitudes and behavior (Sherman, 1996). Another important aspect of stereotypes is that they are learned early in life (Bussey & Bandura, 1984; 1992) and once formed, stereotypes often serve as the primary basis for judging groups and their members. This is partly because stereotypic beliefs tend to be dispositional; that is, they inform us about the enduring characteristics or inner qualities of individuals based merely on their group membership (Mackie & Hamilton, 1993). Also, recognizing the fact that one is being stereotyped by others can affect one's own self-perception (Crocker, Major, & Steele, 1998) and behavior (Steele & Aronson, 1994 in Strangor, 2000). In other words, stereotypes influence perceptions and behaviors of both individuals who stereotype and individuals who are being stereotyped, as well as society at large.

Although the nature and functioning of stereotyping and stereotype use mainly involve cognitive processes, literature on affect suggests that various affective components such as emotion, arousal, or mood states also influence memory and cognitive processing associated with stereotypes (e.g., Bodenhausen, 1993; Hamilton & Trolier, 1986; Srull, 1983; Stroessner & Mackie, 1993).

Social categorization. People use stereotypes because thinking about other people in terms of their social category membership, rather than as distinct individuals,

helps to simplify the world. Allport (1954) argued that people have natural tendency to categorize others into different groups in order to make sense of the world. According to this view, categorization can be seen as an important fundamental process through which stereotyping occurs. Stereotypes can thus be thought to be the result of social categorization. In fact, Allport's analysis of stereotyping and prejudice was based upon this principle of social categorization. One reason why we categorize is, as Allport (1954) explains, because we can reduce complexity by categorizing others. This is because thinking about groups of people requires less cognitive effort than does thinking about individuals, leaving us with more available resources to handle the many other demands on our cognitive processes. The act of categorization also reduces the amount of information to which perceivers must attend (Sherman, 1996).

Many empirical findings have demonstrated the ability of social categories to economize cognitive resources, such as attention and memory. For example, the research by Boenhausen (1990) showed that stereotyped judgments are likely to come into action when people are not operating to their full cognitive capacity. Specifically, the author examined participants' tendency to perceive the target defendant's guiltiness as a function of the time of day and stereotype activation. Interestingly, they found that morning people, who are believed to reach their functional peak early in the day, showed a greater tendency toward stereotypic responses in the evening, while evening people, who are believed to reach their functional peak later in the day, showed a greater tendency toward stereotypic responses in the morning (in terms of guilt judgments of a racially stereotyped target person). The result of this study highlights the potential role of one's available cognitive resources in influencing judgmental heuristics.

Other research suggests that social categorization is more likely to occur in situations that demand cognitive resources (Blaine, 2000; Macrae, Hewstone, & Griffinths, 1993; Tajfel & Forgas, 1981). That is, people tend to rely on stereotyped categorization when there are other tasks that need to be done at the same time or when there is much information about others available that needs to be processed. In one study (Macrae, Milne, & Bodenhausen, 1994), subjects were asked to form their impressions of a target person with or without an assistance of an explicit social category (e.g., "artist," "doctor," "skinhead") while at the same time, listening to a tape describing Indonesia. The results showed that subjects with a help of social category performed significantly better on the unrelated recall test (about Indonesia) than those who did not have a category made available to them. This finding suggests that stereotyped social labels save cognitive resources when making impression formation, enabling perceivers to perform better on a simultaneous, irrelevant task.

Consistent with this result, other researchers also argue that the cognitively economical function of stereotypes facilitates people's preferential recall of stereotype-consistent information than stereotype-inconsistent information, especially when they are under cognitive overload or time pressure (Macrae, Hewstone, & Griffiths, 1993). These findings make it clear that social categories increase the cognitive efficiency of our social information processing by helping us organize and simplify information associated with individuals. Associated with this simplification function of categorization however, is the likelihood of biased encoding and biased interpretation.

It is important to note that the use of social categories depends upon the extent to which they are salient, meaning that they are immediately apparent when we encounter

someone. For instance, it has been found that social categorization occurs more frequently on the basis of a person's race or ethnicity, gender, age, or physical attractiveness, than on the basis of a person's religion or sexual orientation, at least in part because these physical features become instantly noticeable especially when you encounter someone for the first time (Stangor, Lynch, Duan, & Glass, 1992). In addition, characteristics of a person who is categorizing are shown to determine which categories are used to thinking about another person. For instance, members of minority groups (such as Asian or African Americans) might find race or ethnicity to be a more important category than members of majority groups. Therefore, they may particularly likely to think about others in terms of their ethnicity (Stangor et. al., 1992). Similarly, women who are active in the feminist movement might be particularly likely to think about people in terms of gender among other categories (Bem, 1981 in Stangor).

Self-identity, out-group homogeneity effect, & in-group favoritism. Another important motivational factor that has been proposed as explanation for the stereotyping is the need for positive self-identity (Tajfel, 1982). Self- identity is, as pointed out by many theorists, an important source of self-regard or self-image because group membership becomes an important part of the individuals' sense of self (Tajfel & Turner, 1986). People have an underlying need to be part of social groups and to be accepted by others, and they tend to value other members in the groups that they belong to (Hogg and Abrams, 1988; Luhtanen & Crocker, 1992). Studies showed that participants who were allowed to make favorable relationship with the group they belong to indeed reported an increased self-esteem compared to with those who are not (Lemyre & Sminth, 1985; Oakes & Turner, 1980). This shows that social identifications are a significant source of

self-esteem and a sense of belongingness indeed makes us feel good about ourselves (Baumeister & Leary, 1995; Fein & Spencer, 1997). Thus, the extent to which a person identifies with and value his or her own social group may influence how people evaluate the members who belong to their own groups (ingroup) vs. to other groups (outgroup). The more strongly an individual identifies with a social group, the more important it should be for the individual to perceive the group favorably, and the more threatening a negative stereotype of one's group will be (Schmader, 2002).

Fein and Spencer (1997) provide important empirical evidence supporting the relationship between self-image and stereotyping. In their research, they show that stereotypic evaluations of others (i.e., Jewish American woman in Study 1; gay man in Study 2) can help perceivers restore a positive self-image. As the authors argue, engaging in stereotyping and prejudice can be an effective way for many people to feel good about themselves especially when there is no other available means of affirming oneself or reducing self-image threats (Fein & Spencer, 1997). Thus, it can be argued that individuals with few evaluatively positive social identities, or those who are motivated to restore a feeling of overall self-worth should be more likely than other individuals to maintain their positive aspects or seek out advantage of stereotypes by engaging in pronounced ingroup/outgroup differentiation[2]. Simon (1992) took essentially the same perspective by stating that group members are "assumed to strive for a positive social identity… [they] should therefore emphasize relative ingroup homogeneity on typical ingroup attributes" (p. 13). Thus, stereotyping entails personal processes that provide a feeling of superior social identity to the perceiver. According to Tajfel, positive social

[2] Although this speculation is intuitively sensible, some research shows the opposite. That is, it is actually people with high self-esteem and from high-SES who exhibit the most in-group bias (e.g., Crocker & Luhtanen, 1990). This finding is discussed in more detail on pp. 11-12.

identity can lead a person to ascribe positive characteristics to the self as well as to groups with which he or she identifies (i.e., ingroups).

According to Tajfel (1982), social categorization processes results in an accentuation of intergroup differences and intragroup similarities called the *out-group homogeneity effect*. The out-group homogeneity effect involves the tendency to see members of the out-group as a collective of similar individuals and members of the in-group as a collective of relatively unique individuals (Tajfel, 1982). Later, some researchers like Ostrom and Sedikides (1992) theorized this out-group homogeneity effect as "a special case of stereotyping" (p. 536). Based on this reasoning then, the key factor determining stereotyping (in general, and the out-group homogeneity effect in particular) seems to be an individual's group membership which affects social perception and categorization. According to Ostrom and Sedikides (1992), group membership leads to accentuation of 1) intergroup differences (in favor of the own group) and 2) accentuation of intra-group similarities (in favor of out-group homogeneity). One important offspring of this research reflects, as Ostrom and Sedikides (1992) discuss, a phenomenon called *in-group favoritism.* The in-group bias (or favoritism) refers to the tendency to display more favorable attitudes toward members of their own group than toward members of other groups.

Therefore, it can be argued that both the *out-group homogeneity effect* and *in-group favoritism*, having their cognitive basis in categorization, set the stage for stereotyping. Using a priming technique, Purdue and his colleagues (1990) tested automaticity of ingroup favoritism. They showed that subjects preconsciously primed with in-group designators (e.g., "we" or "us") recognized and categorized positive traits

(in the form of adjective words) more quickly than when primed with out-group designators ("they" or "them"). The result suggests that a mere exposure to ingroup vs. outgroup designating words can prime or make cognitively accessible stereotypic associations more rapidly than it does irrelevant or contradictory associations, and moreover, can subtly shape evaluative responses toward other members of a group.

In brief, by the process of self categorization, group membership becomes an important part of the individual's sense of self, adopting its defining norms and characteristics. Thus, we routinely categorize others in terms of ingroup and outgroup membership because being part of the ingroup and feeling that our own group is better than other groups boost our social identity and makes us feel good about ourselves. To the extent that social identity provides an important source of positive self-regard, the social identity perspective is a crucial feature of stereotype, because people may engage in negative and even derogatory evaluations of others (which makes them feel better about themselves) as a means of restoring positive sense of self and group image.

How are stereotypes activated?

Priming of stereotypes. A long tradition has conceived of stereotyping and prejudice as an automatic and inevitable consequence of categorization which influences judgments and behaviors (Allport, 1954; Tajfel, 1969). The prevailing view of stereotype activation is that stereotypes are activated automatically as part of the perceptual process. Automatic cognitive processes have been defined as those that are not effortful, intentional, or consciously controlled by the perceiver (Bargh & Pietromonaco, 1982). Research has provided evidence that if a perceiver has preexisting stereotype in his or her memory, it will be activated automatically when members of the stereotyped group are

encountered. In other words, mere exposure to the target person or group is enough to generate automatic activation.[3] (Devine, 1989; Lepore & Brown, 1997). Because this activation occurs preconsciously, one is not aware of both its activation and its use, and this process is often referred to as *implicit stereotyping* (Banaji & Greenwald, 1994).

Much of the work on automatic activation has been examined via priming procedure. Social psychologists began using priming procedures in the late 1970s to study stereotype activation and subsequent perceptional and attitudinal response (e.g., Srull & Wyer, 1979). Since explicit self-report measures of stereotyping and prejudice are fraught with social desirability and self-presentation issues, priming (preconsciously activating a category label or associated traits) technique is used in measuring automatic stereotype activation and its effects on judgments. When this priming technique is used, the participants are less likely to fake their responses because the category is primed entirely out of their awareness.

Priming is theoretically based on a neo-associationistic model that employs the concepts of associative networks and spreading activation to understand priming process (Jo & Berkowitz, 1994). Briefly, this model conceptualizes thoughts, feelings, and behavioral tendencies (i.e., scripts or schemas) as nodes in human cognitions, with semantically related nodes interconnected via associated pathways. Once one node is primed or activated, excitation spreads through associative pathways, triggering activation of other thoughts and feelings related to cognitions being primed. In turn, these activated cognitions may affect interpretations of or responses to subsequent stimuli that are relevant to the primed cognitions, at least for a short time (Fisk & Taylor, 1984;

[3] It is important to note that whether such automatic stereotype association will be perceived as relevant to a judgment to be made may or may not involve automatic processing. (if so, it will then likely provide the initial basis for a stereotyped judgment).

Huesmann & Kirwil, 2007). Based on this cognitive framework, stereotypes can be seen as cognitive networks of linked attributes. Upon encountering a category member, a group node is activated, and the activation spreads to other connected nodes linked to stereotypic characteristics.

Priming research has shown that primes related to stereotyped group members tend to automatically facilitate responses to negatively valenced (Gaertner & McLaughlin, 1983) and stereotypical target words (Banaji & Hardin, 1996). The typical finding with respect to racial groups is that White participants are faster to respond to positive target words paired with White primes and negative target words paired with Black primes. For example, Wittenbrink, Judd, and Park (1997) primed racial categories by showing the word "Black" or "White" outside conscious awareness, then asked participants to decide whether a second word presented at a conscious level was a word or not. These words were varied on valence and stereotypicality with respect to race. The results showed that for their White subjects, Black primes speeded decisions about negative, Black stereotypic traits among White participants, while White primes speeded decisions about positive, White stereotypic traits.

In another study, which employs gender prime, Banaji and Hardin's (1996) research also supports the preconscious automaticity of stereotyped associations even when evaluations are irrelevant. In sorting by pronouns, males classify "he" as a pronoun faster than "she," whereas females classify "she" as a pronoun faster. Similarly, when participants were preconsciously primed with stereotypic personality traits and other gender-specific characteristics ("e.g., "emotional," "muscular"), they identified faster the

gender of first names that matched the primes on gender (Blair & Banaji, 1996). In these studies the brevity of exposure to the primes strongly suggests preconscious automaticity.

Previous research has demonstrated that the relative accessibilities of the categories partly determine the selection and interpretation of stereotypic information. Specifically, more accessible categories are more likely to be used to process relevant information. According to priming literature, categories can become more accessible through greater frequency or recency of activation (Bargh, Lombardi, & Higgins, 1988; Higgins & King, 1981; Srull & Wyre, 1980). Since social perception and judgment is governed by categories that are accessible, we are more likely to classify people by frequently used categories or categories that have just recently been used than by categories rarely used. Also, if we are used to thinking about people around us in terms of certain stereotypical dimensions, we will tend to activate these categories to deal with new or unknown events, thus adding to their accessibility.

In a demonstration of the influence of accessible racial and gender categories on impression formation, researchers (Macrae, Bodenhausen, & Milne, 1995) primed the category "Chinese" or "women." Then, subjects viewed a video clip of a Chinese woman reading and were asked to rate the editing of the tape. Thus, subjects' impressions of the person in the tape could be based on either social category: her gender or her ethnicity. In a final task, subjects identified trait words from a list that included some words that were typical of the social categories "women" (e.g., helpful) and "Chinese" (e.g., disciplined). The results showed that those primed with the gender category were faster in recognizing the women-typical traits, but slower in recognizing the Chinese-typical traits than those

primed with the ethnicity category ("Chinese"). Parallel findings occurred for those who were primed with the category "Chinese" (Macrae, Bodenhausen, & Milne, 1995).

In other words, more recently activated stereotyped social category (ethnicity vs. gender) facilitated access to the related constructs in the subjects' semantic memory and thus was used to process new incoming information. This study underlines two important points. First, when more than one social category can be used to think about someone, accessible social categories – ones that have been recently used – take precedence. Second, when an accessible social category is used to process social information, other relevant categories are inhibited – that is, they become less helpful than when the first social category is absent.

Although the temporary accessibility of a category is directly related to its recency of activation, it is equally important to note that, as Bargh and Pietromonaco argue (1982), the long-term, chronic accessibility of a given category also can differ across individuals. Researchers argue that frequent activation of a construct can "temporarily lower threshold of activation" (Bushman, 1995, p. 538), "eventually making [it] chronically accessible," (Huesmann & Kirwil, 2007, p. 549). Chronically accessible constructs are assumed to develop from frequent and consistent experience with a specific domain of social behavior, so that they become more likely than others to be used in the interpretation of social behavior (Bargh, 1984). Thus, chronically accessible concepts have more persistent effects on people's judgments and behavior than do other concepts that are not chronically accessible.

This reasoning is consistent with Higgins and King's (1981) model, which posits that frequent activation is a necessary condition for chronic accessibility. Higgings et al.

(1985)'s study similarly demonstrated that recency of activation gives a construct relatively greater accessibility or likelihood of use for a brief amount of time, but frequency of activation gives a more durable advantage in accessibility that eventually overtakes the advantage of recency. Bargh, Lombardi, and Higgins (1988) later provided a stronger evidence for automaticity of chronically accessible constructs. In their study, priming (as automatic, short-term effect) also did occur but was eventually overridden in its effect by the influence of the chronically accessible construct. They argued that "when there is a delay between final priming and presentation of the social behavior, one's chronically accessible but unprimed social constructs are more likely to be used to interpret social behavior than an equally applicable construct that has been recently primed by the situational context." (p.603) This study suggests that the automatic perceptual biases reflect the long-term nature of one's social experiences- that is, one's chronically accessible constructs – are the default interpretative mechanisms.

Whether the impact is temporal or enduring, what remains consistent across these studies is the ability of stereotypic content to preconsciously or automatically prime other stereotype-relevant content in subjects' cognitions. Indeed, the theoretical and empirical research reviewed thus far appears to bolster the inevitability of stereotype activation and its impact on perception. However, the assumption that stereotype activation operates outside of an individual's awareness and begins without conscious intent (Higgins & King, 1981) brings up an important question of the inevitability of stereotype outcomes such as prejudice. If one cannot interrupt an automatic process once stereotypes are activated, does this mean that one cannot have control over his/her conscious judgments or behavior toward stereotyped group members?

Although previous research seems to converge on an assumption that stereotypes are automatically activated upon perception of a category, there are few theoretical and empirical work suggesting that automatic and controlled processes can operate independently of each other (Logan, 1980; Neely, 1977; Posner & Snyder, 1975). For example, Devine (1989) challenges the inevitability of prejudice framework by distinguishing between automatic and controlled processes. Basically, Devine's model argues that although people are inevitably and equally knowledgeable of the cultural stereotype of Blacks (primarily because of common socialization experiences; Study 1), people differentially process stereotypical information because of the differences in their adoption of personal standards. In her study, Devine (1989; Study 3) further showed that even though activation of the stereotype is automatic, low-prejudiced individuals tended to suppress its use to a greater degree than high prejudiced individuals.

This finding points to an important aspect of stereotyping processes by suggesting that the activation of stereotypes may be distinct from the application of stereotypes. This means that simply because a stereotype is activated does not necessarily mean that it will be applied to subsequent judgments or behaviors. This view is especially buttressed by scholars of political domain who employ the concepts of accessibility and applicability in discussing how news media content plays an important role in priming or activating existing thoughts or beliefs about politics in one's memory, and these activated thoughts in turn can influence his or her subsequent processing of new information involving relevant political issues (McLeod et al., 2002; Price & Tewksbury, 1997). Drawing from cognitive approach to priming and chronic accessibility, Price & Tewksbury (1997) speculate that frequent exposure to primes can gradually increase the likelihood that the

primed thoughts will become chronically accessible when called to make relevant judgments relevant to political issues. Thus, a priming effect, in the context of political communication, specifically refers to the idea that issues receiving prominent news coverage not only prime (thereby becoming accessible), but also function as a criteria for making judgments about political figures or events related to that issue (McLeod et al., 2002).

However, it is important to acknowledge that not all accessible ideas are equally germane to a given issue (Nelson et al.,1997). That is, information (activated construct) that is perceived as *applicable* to the current situation will be more likely to be used as a criterion for making judgments. Thus, judgments of applicability seem to play an important role in determining whether accessible constructs will be utilized in the subsequent evaluation. Viewed in this way, essential to stereotype activation and outcome is the accessibility of a construct as a result of the increased exposure to stereotype-related primes, yet heightened accessibility would not automatically guarantee stereotypic behavioral outcome. Thus, at least based on Divine's findings and political scholars' approach to priming effect, it is reasonable to assume that accessibility is a necessary, but not sufficient condition for prejudiced outcomes.

This is conceivable in the sense that in order for a construct to be retrieved as a judgment criterion, it must be accessible in the first place. It is after this accessibility effect that one can render judgment about the applicability of that construct. Still, it is important to note that accessibility and applicability cannot be completely isolated from one another because frequent and repeated activation can increase chronic accessibility of that construct. Because of this possibility of mutual relations reinforcing each other,

trying to come to a decision on which happens first would not bear much fruit. Therefore, a more sophisticated and broader theoretical framework that can incorporate priming and chronic accessibility would better explain (clarify) how exposure to stereotype content (via social interaction, media, etc.) and stereotype activation influences people's perceptions and judgments (i.e., applicability) in intergroup contexts.

How are Stereotypes Acquired?

Conditioning of stereotypes. Classical conditioning, first proposed by Ivan Pavlov (1927), occurs when an initially neutral person or object comes to elicit a conditioned response after repeated pairing with an unconditioned stimulus. Although Pavlov's model has its origins in animal conditioning, recent studies of human learning have also found evidence consistent with this theory (Griffiths & Le Pelley, 2009; Le Pelley & McLaren, 2003; Livesey, Harris, & Harris, 2009). Moreover, certain phenomena of stereotyping have proved amenable to an associative analysis (Murphy, Schmeer, Mondragon, Vallee-Tourangeau, & Hilton, 2009; Smith & DeCoster, 1998). On this approach, stereotype formation is modeled as the formation of an association between a mental representation of a group and a representation of a trait or attribute. For example, formation of the stereotype "Hispanic gang members are aggressive and violent" would be modeled as learning of an association between a representation of Hispanic gangs and a representation of aggression and violence. Once this association is learned, encountering a new member of Hispanic gangs will tend to activate the idea of violence; that is, the stereotype will be activated.

Based on the classical conditioning framework, it can be theorized that repeated experience of particular emotion when the stereotypic attributes of a group is activated

can soon transfer to the group itself through this process. For example, driving through a ghetto area may arouse scary feelings. After a few experiences in driving, the negative emotions elicited by the aversive environment may ultimately become associated with the particular racial groups residing in that ghetto neighborhood. Thus, the uncomfortable feelings accompanied by the ghetto area can become a conditioned response to the particular racial group that has been equated (or paired) with the fear-arousing ghetto driving. At first, experience involving the group is bad (in the sense that driving ghetto neighborhood arouses negative feelings); soon, the group itself seems bad. Further, the experience of fear or anxiety may also amplify reliance on stereotypes, increasing the tendency to see associated groups in stereotypic ways (Stephan & Stephan, 1985).

This conditioning process may also play a role in explaining how regularly encountering and associating certain groups in aversive situations can elicit negative emotions such as anger and resentment (Gaertner & Dovidio, 1986), just as evaluative reactions to individuals can be influenced by conditioning (Clore & Byrne, 1974). Recently, cognitive theories have been invoked to explain similar effects. As Fiske and Pavelcheck (1986) described, the fear or uncomfortable feelings serve as conditioned "affective tags" that are linked to group representations that trigger an emotional response. Research suggests that even casual interactions with unfamiliar groups are often accompanied by negative emotions. When members of one group are asked to report the emotions they experience in everyday dealings with out-groups, the feelings most often reported are anxiety and irritation (Dijker, 1987; Vanman & Miller, 1993). Some evidence suggests that the less frequent the interaction between two groups, the more anxious and irritated their members are likely to feel when they do meet (Stephan &

Stephan, 1985). After several uncomfortable interactions, the emotions initially arising from the intergroup encounter can become associated with the group itself, so that negative affect becomes part of the group stereotype.[4]

As a result of conditioning of stereotyped group with its negative attributes, then, interacting with its members or even thinking about the group may generate the distress, fear, or anger initially activated by emotional experience. Because classical conditioning is assumed to be a basic mechanism of learning that requires little sophisticated cognition, its operation could contribute to stereotype formation even in infants and very young children (Macrae, Stangor, & Hewstone, 1996).

Observational learning of stereotypes. Although making association between an individual and the attributes characteristic of his or her group membership can occur through social conditioning, stereotypic beliefs can also be learned through observational learning over the long term. One viable theoretical explanation underlying the development of stereotypic beliefs is based on Bandura's (1977; 1986) social learning theory, which stresses the role of observational learning and reinforcement in the development of stereotype-related cognitions and their behavioral manifestation. As described earlier in this chapter, stereotypes consist of a set of beliefs, attitudes, and descriptive concepts that are associated with membership in a social category (Bodenhausen & Macrae, 1998). Just like any other types of social scripts (e.g., aggressive scripts; Huesmann, 1997), beliefs and scripts related to stereotypes are likely to be acquired by first observing others and then firmly established by having its use

[4] Allport (1954) proposed that associating contact with out-group members to positive feelings may reduce negative attitudes and improve intergroup relations (i.e., "contact hypothesis").

reinforced. Such learning takes place via exposure to live (e.g., parents, peers, siblings, teachers, etc.) or mediated models (i.e., characters in the media).

For example, observational learning theory suggests specific mechanisms through which gender-related stereotypic conceptions are acquired. From this perspective, children attain specific knowledge and behavior related to gender and gender roles by observing and interacting with their parents at an early age (Bandura, 1977). Throughout this observational learning process, children not only monitor and emulate traditional gender-related activities, but also internalize values and beliefs associated with the ideas about proper gender roles transmitted by their parents (Bandura, 1986; Huesmann & Eron, 1986). As social learning theorists have pointed out, children prefer to learn and adopt more behaviors of their same-gender parent than those of their opposite-gender parent (Bussey & Bandura, 1984; 1992; Mischel, 1970). Thus, when both boys and girls are exposed to gender-related performance (e.g., aggressive behavior) enacted by their fathers, boys adopt that type of behavior to a greater extent than do girls. Likewise, girls emulate and practice their mother's feminine activities to a greater extent than do boys.

Children's selective attention to and greater association with the same-gender model is further strengthened by the extent to which they identify with the model and the extent to which their modeled behavior is rewarded (Bandura, 1977). In general, girls are encouraged to be gentle and nurturing and boys to be adventuresome and independent (Zahn-Waxler, Cole, & Barrett, 1991). And parents usually respond more positively to their children when they engage in gender-stereotypical than gender-atypical behavior. Such parental upbringing that is commonly in accordance with social sanction further stresses the differential attributes and roles pertain to gender from early childhood.

In addition, parents' beliefs and attitudes toward a particular racial group can also provide their children an opportunity for learning of racially biased view. If mention of Black criminals reliably generates negative judgments and feedback on the part of a parent, activation of the group concept (i.e., Blacks) will likely be regularly accompanied by the resulting fear or repulsion felt by a child. Such emotional activation coupled with negative appraisal can be encoded and integrated into the child's memory as well as the kinds of inferences that will be made about that racial group (Huesmann, 1998). If using the acquired scripts (e.g., Blacks are violent criminals) in making judgments about situations or interactions involving Black racial groups seems appropriate (and produces a desirable outcome) to the child, retrieval of such biased scripts will likely be facilitated and maintained (Huesmann, 1998). With repeated rehearsal of stereotyped information, such negative attributes (e.g., violent) becomes firmly associated with the group (Blacks), reinforcing reliance on racially stereotyped beliefs and attitudes in the child's future social interactions.

Individual Differences: Moderators of Stereotypes

As discussed thus far, researchers interested in stereotypes have tended to devote their attention to identifying the fundamental cognitive processes involved in learning of stereotypes how these general processes should be relevant to intergroup perception. However, there is also a body of research focused on identifying which aspects of perceivers contribute to more or less stereotyping (e.g., Devine & Monteith, 1993; Levy, Stoessner, & Dweck, 1998; Monteith, Sherman, Devine, 1998; Moskowitz, Salomon, & Taylor, 2000). I believe studying personality variables as moderators of stereotype effect

is crucial for understanding why some individuals (e.g., those with more pre-existing stereotypes and prejudiced attitudes) are more likely to use stereotype than others.

Prejudiced Attitudes. In one study, Levy, Stoessner, and Dweck (1998) examined a moderating role of interesting personality traits in stereotyping. Specifically, the authors characterized their participants in terms of their beliefs about human nature: participants who believe that human traits are fixed (i.e., "entity theorists") vs. participants who believe human traits are malleable (i.e., "incremental theorists"). Based on implicit theories, the authors argue that people vary in the extent to which they engage in processes that are implicated in stereotyping. They found that both groups were equally knowledgeable about social stereotypes; however, entity theorists, as opposed to incremental theorists, made more stereotypical trait judgments of ethnic and occupational groups, made their judgments more quickly, and believed that the information they received was sufficient to justify their judgments, and finally formed more extreme judgments of novel groups (Levy et. al., 1998). This finding suggests that people's basic view about robustness of personality (i.e., whether it's believed to be fixed or changeable) affect the degree to which they engage in the formation and endorsement of stereotypes.

Devine's (1989) research has important implications for the regulation of stereotype because it offers some possibility that unprejudiced individuals can overcome the automatic aspects of prejudice with controlled and conscious processing of biased information. In their later study, however, Devine and Monteith (1999) argued that although low-prejudiced people should be less likely than high-prejudice people to evidence behavioral manifestations of activated stereotypes, stereotype application may be likely to occur for any individual when the motivational and situational resources are

lacking or absent. For instance, stereotypes can exert influence even upon low-prejudice individuals in situations in which deliberative processing of information or the ability to regulate response is disrupted, or in situations in which the task at hand seems irrelevant to activated stereotypes that they find little reason to stereotype suppression.

In more recent research, Moskowitz, Salomon, and Taylor (2000) provided some qualifications to these findings. They found that people with persistent egalitarian values or goals can suppress automatic activation of stereotypes, and thus suppression itself occurs automatically, outside of awareness. In addition to egalitarianism, discrepancies between one's ideals of fairness and one's actual responses can motivate people to reduce prejudicial biases (Devine & Monteith, 1993; Monteith, Sherman, Devine, 1998). Similarly, empathizing with stigmatized groups and seeing things from the perspective of a different group can also aid in reducing prejudice (Galinsky & Moskowitz, 2000).

Regarding the impact of personal control variables on initial categorization both (Strangor et al. 1992) and Brewer, Weber, and Carnini (1955) found that one's pre-existing prejudiced attitudes can influence categorization. For instance, Strangor and his colleagues (1992, Experiment 3) found that high-prejudiced perceivers were more likely to categorize targets on the basis of their race than were low-prejudice perceivers. Brewer and his associates (1993; Brewer, 2000) found that initial social categorization was influenced by the current, contextual goals of the perceiver. This suggests that level of prejudiced attitudes can moderate the effect of the social context on behavior and social judgment. That is, the behavior and judgments of people high in prejudice are potentially more prone to external norms or standards that encourage or discourage discrimination.

People low in prejudiced attitudes however, can be expected to be less influenced by such external standards.

In-group and out-group bias. In addition to one's existing level of prejudiced attitudes, in-group/out-group bias is known to play an important role in influencing stereotype effects. Specifically, stereotypes and prejudice are more likely to have a negative impact under situations involving in-group/out-group bias. As the term reflects, the in-group bias or in-group favoritism entails an affective component; that is, people tend to display more favorable attitudes toward members of their own group than toward members of other groups (Tajfel & Turner, 1986, p.13). Substantial empirical evidence has accumulated that demonstrates the mere perception of belonging to two distinct groups – that is, social categorization per se – is sufficient to trigger intergroup discrimination favoring the ingroup (Dovido, & Gaertner, 1993; Park, Judd, & Ryan, 1991; Perdue et al., 1990; Tajfel & Turner, 1986).

With respect to racial attitudes, one study showed that White participants responded faster to positive than negative traits when paired with the words "White" as opposed to "Black" prime (Dovido, Evans, & Tyler, 1986). A similar pattern of ingroup advantage emerged from studies of participants primed with the word "young" or "old," then reacting to positive and negative trait adjectives (Perdue & Gurtman, 1990). Even stronger evidence for preconscious automatic in-group favoritism comes from work by Perdue et al. (1990; Experiment 1), who found that nonsense syllables paired with ingroup pronouns were rated more positively than syllables paired with outgroup pronouns or with control syllables. The syllables paired with outgroup pronouns were rated less positively than the control pronouns. Taken together, these studies show that

mere awareness of the presence of an outgroup member is sufficient to provoke intergroup discriminatory responses on the part of the ingroup.

In a similar study using ingroup vs. outgroup primes, Dovido and Gaertner (1993) showed that an ingroup word ("we") presented outside the perceiver's conscious awareness facilitated access to positive constructs in semantic memory in relation to the effects of an outgroup word ("they"). In addition, they found that outgroup prime did not actively promote negative construct accessibility. This interpretation is consistent with Brewer's (1979) conclusion that intergroup biases, at least in the minimal intergroup situation, are more a product of in-group favoritism than of out-group derogation.

In these studies, after the priming word was briefly flashed on the screen, a visual mask was presented to prevent the group label from being consciously processed. These findings suggest that the facilitating and inhibiting effects of the group labels were entirely automatic. Taken together, these studies suggest that primes (usually in the form of words) presented outside of awareness can temporarily increase the accessibility of semantically and evaluatively related constructs for the perceiver resulting in facilitation of unconscious stereotypic associations.

Since in-group favoritism is shown to enhance self-esteem, it would be reasonable to expect people with low levels of self-esteem to engage in the most stereotyping and prejudice because they have the greatest self-esteem needs. Although this is intuitively sensible, research shows that it is actually individuals with high self-esteem and from high-status advantage groups who exhibit the most in-group bias (Crocker & Luhtanen, 1990; Crocker, Thopson, McGraw, & Ingerman, 1987). These studies indicate that ingroup bias does produce at least a temporary increase in one's self-esteem. But those

with greater need of self-esteem lift do not engage in it, whereas those with little need for a more positive social identity engage more do. The authors discuss that perhaps this is because emotional underpinnings of in-group favoritism are not limited to enhancing self-esteem. Biased evaluations of an outgroup are also related to feelings of group deservingness and relative deprivation.

For example, when your group is not receiving what you believe it should or what other groups are perceived to be receiving, a sense of relative deprivation ensues. One study (Vanneman & Pettigrew, 1972) demonstrates that only participants who perceived that their group was either collectively deprived (compared to Blacks) or individually deprived (compared to other people) expressed negative attitudes toward Blacks. Bobo (1988) also claims that, based on his research, the perception of relative deprivation is empirically related to biased thinking (ingroup favoritism) and group stereotypes. These studies point out to another important individual difference variable (i.e., self-esteem) that moderates the stereotyping processes and effects. Self-esteem is important personal factor because our evaluation of social difference tends to be heavily influenced by our feelings of worthiness and deservingness. Moreover, biased evaluation inevitably (although perhaps not directly) leads to indifference or dislike, as well as to the negative behaviors usually associated with those feelings toward other members of group in our society.

While these studies support the idea that efforts to boost one's self-image can have negative impact on stereotype use, Bodenhausen and Macrae (1998)'s research suggests different, yet interesting effects associated with self-image. Their research demonstrates that manipulating one's level of self-concept can reduce, rather than

increase, stereotypic responses. In order to induce self-concept, researchers placed a mirror or television (which displayed the subject's own image) in a laboratory room. The results showed that compared to subjects in no mirror or television condition, subjects in the mirror or television condition pronounced significantly less stereotypic descriptions of the target (Bodenhausen & Macrae, 1998). This effect occurred even in the absence of any explicit pressure from the experimenter to suppress stereotypes. This suggests that activation of one's self-concept automatically initiated self-regulatory processes that reduce the extent of stereotypic responses.

Although the authors do not directly test a moderating role of the subjects' endorsement of egalitarian value or prejudice level, it can be assumed that these individual differences are likely to generate differences in the results. For example, those who actively pursue egalitarian or altruistic goal can be more, though spontaneously, motivated to regulate their stereotype use than those who are highly narcissistic or egocentric. Interestingly, this study (Bodenhausen & Macrae, 1998) further reported that following a removal of mirror or television, subjects displayed a greater tendency to stereotype the target. This is called a "rebound effect[5]," which refers to the general hypothesis that efforts to suppress a stereotype in one situation lead to greater stereotyping in a later situation (backfiring of mental control; Macrae, Bodenhausen, Milne, & Jetten, 1994). Thus, compared to high prejudiced people, low prejudiced people may be more able to reduce this "rebound effect" - that is, low prejudiced people are

[5] In Bodenhausen and Macrae (1998)'s research, the subjects' description of the second target became markedly more stereotypic after removal of the self-image evoking device (this was achieved by either removing the mirror or displaying image of a stranger on the television monitor instead of displaying subjects themselves). That is, the release from self focus resulted in a relaxation of stereotype suppression motivation.

expected to be slower in dissipation of motivation to suppress stereotypic responses even after the level of self-awareness is minimized.

Taken together, the research on individual moderators discussed thus far clearly show that at least some people are apt or motivated for a variety of reasons to control stereotyping, or at minimum, not appear prejudiced. It is also clear that the control of prejudice takes effort. Based on these findings, however, it still seems unclear which aspects of perceivers, other than their prejudiced tendencies, values, and self-worth contribute to more or less stereotyping. In addition, more theoretical and empirical work needs to be done in identifying other individual difference factors that may likely influence (either moderate or mediate) the stereotyping process.

Stereotypes in the Mass Media

In addition to direct observational learning in home settings, social learning theory addresses the acquisition of gender and race related information through vicarious observation and learning from media representations of gender and race.

Gender stereotypes in mass media. Children are constantly exposed to pervasive cultural modeling of gender roles disseminated by various types of media including story and picture books (Jacklin & Mischel, 1973; Turner-Bowker, 1996), as well as television and movie screens (Harris & Voorhees, 1981; Slaby & Frey, 1975; Thomson & Zerbinos, 1977). Numerous studies have consistently found that male and female characters are portrayed with stereotypical attributes and roles and with those ascribed to males generally being regarded as more desirable and superior (Berscheid, 1993; Bretl & Cantor, 1988; Downs & Harrison, 1985; Seidman, 1993; Signorielli, 1985). Most media characters are generally portrayed in accordance with typical masculinity or

femininity. Male characters are often celebrated when they show strong, ambitious, independent, authoritative, and assertive characteristics, whereas female characters are celebrated when they are shown as amiable, dependent, sensitive, merciful, and compliant (Hodges, Brandt, & Kline, 1981).

Gender stereotypical portrayals of male and female media characters also extend to the representation of occupational roles in the media. Occupationally, males are more likely than females to have a determinable job (Signorielli & Bacue, 1999), to be shown working (Signorielli & Kahlenberg, 2001), and to be hold positions of occupational leadership, power, and to be depicted with discernible goals (Lauzen & Dozier, 2003). While men are shown pursuing careers involving high social status and expertise, women are largely confined to domestic roles or low status occupations requiring less expertise or knowledge (Durkin, 1985; Milkie, 1994). The content analysis of 400 top movies released in North America between 1990 and 2006 reveal that females are shown more traditionally (i.e., caregiver, relational partner) as well as younger than their male counterparts. The age-related finding suggests that appearance is a more discriminating screen feature for females than males (Smith & Granados, 2009). Gender stereotyping is also reflected in television and print commercials. Past studies found that women generally advertise food, beauty care, and weight loss products, or are consumers of such products, while their male counterparts are shown advertising computers, stocks and bonds, or automobiles (Allan & Coltrane, 1996; Furnham & Bitar, 1993). When females do appear in sales roles in the realm of "masculine" commercials, female bodies are often displayed as sexualized objects to sell masculine products such as automobiles or beer.

In line with the sexually stereotyped female images in commercials, the standards for physical attractiveness are also more heavily associated with and emphasized for female compared to male televised characters (Downs & Harrison, 1985). A female body which deviates from traditional standard of feminine beauty (e.g., oversized, disorderly, and sexually unattractive woman) is commonly underrepresented and unappreciated in the American media. Unrealistic and sexualized females bodies often appear in television, film, and print magazine content (Smith et al., 2007; Harrison, 1997; 2003; Levine & Harrison, 2009). Studies show that media exposure to thin ideals can affect females' attitudes and behavior toward their own bodies: desire for a thinner body, health-related symptoms (e.g., anorexcia, bulimia), and drive for thinness (Harrison, 2003).

Although most flagrant representations of gender stereotypes in the media have declined, a considerable number of stereotypical portrayals of women, often exaggerated, inaccurate, and demeaning, are still prevalent (Bretl & Cantor, 1988; Kang, 1997). It is not difficult to suppose that children who watch a great deal of stereotype-promoting media, compared to those who watch less of this media, have more stereotypical interpretations of gender. Not surprisingly, those with a heavy diet of the television viewing display more stereotypical gender role conceptions than do light viewers (McGhee & Frueh, 1980).

Sex differences in behaviors also have been assessed. Consistent with research in the violence arena (Gerbner, 1997), it has been found that males were more likely than females to be depicted as physically aggressive and threatening, except for comedic series. Females were more likely than males to be affectionate, make negative comments, use hostile remarks, and show concern in situation comedies (Gerbner, 1997).

Racial Stereotypes in mass media. Research suggests that the contemporary media representations of race/ethnicity reflect inaccurate reality of race/ethnicity in society. Although African Americans' rate of appearance in television (14-17%) exceeds their proportion of the real world population (12% based on U.S. Census, 2000), Black characters are not seen across a variety of TV genres. They are exclusively seen in sitcoms or crime dramas (Mastro & Behm-Morawitz, 2005; Mastro & Greenberg, 2000; Matabane & Merritt, 1996). In terms of the manner in which Blacks are depicted on film, the typical Black characters are younger than their White counterparts and are more likely to be employed in positions with lower levels of occupational prestige than Whites (Escholtz, Bufkin, & Lon, 2002).

Perhaps the most unfavorable racial stereotypes are prominent in news coverage. Black Americans' rate of representation as violent criminals in the news media is not only discrepant when compared with depictions of Whites, but is additionally inconsistent with real-world arrest reports (Dixon & Azocar, 2006; Dixon & Linz, 2000). Research reveals that Black Americans are most frequently depicted as perpetrators responsible for criminal activity (Dixon & Linz, 2000; Entman, 1994; Romer, Jamieson, & de Coteau, 1998), appearing nameless and restrained, and with a disheveled and threatening appearance (Entman, 1994). For example, Dixon and Linz (2000) found that Blacks were twice as likely as Whites to be portrayed as perpetrators. Also, Blacks represented 37% of the perpetrators featured in crime news stories aired on Los Angeles news stations, when in fact, they comprise only 21% of those arrested (Dixon & Linz, 2000). Additionally, Whites are overrepresented as officers on local television news programs and crime-based reality television shows compared to the reality. At the same

time, Blacks are also significantly underrepsented as victims of crimes (Oliver, 1994). In sum, Black Americans are associated with negative roles as criminals on television news whereas Whites occupy positive roles as officers.

Compared to Blacks, other minorities like Latinos and Asians are disproportionately underrepresented in the prime time television. Although Latinos comprise approximately 13% and Asians comprise 4% of the population (U.S. Census, 2000), Latinos are represented only between 2% and 6.5% and Asians between 1% and 3% respectively, on primetime television (Children Now, 2001; Mastro & Greenberg, 2000). When Latinos are seen on TV, their portrayals are primarily confined to sitcoms and crime dramas, and are lower in job authority, lazier, less articulate, less intelligent, and hot-tempered (Mastro & Behm-Morawitz, 2005; Mastro & Greenberg, 2000). Like Blacks, Latinos are depicted as crime perpetrators more frequently than Whites (Dixon & Linz, 2000). Despite the scarcity of their representations, Asian American characters are often in high-status and professional positions (Children Now, 2004); however, they are most commonly portrayed in conservative attire in the workspace and are characterized by their passive nature (Mastro & Stern, 2003). Images of Asian men are found most frequently in technology commercial advertising (Mastro & Stern, 2003). Asian women are usually confined to submissive or sexually exotic roles (Park, Gabbadon, & Chernin, 2006).

Gender and racial stereotypes in video games. As in other types of traditional media like television and movies, stereotypical representations of gender are replicated in video games. Female characters in video games are few in number and very limited in the range of their characteristics (Dietz, 1998; Provenzo, 1991). Studies on video games

reveal that only 10% to 14% of main characters are female, and even when they are present, female characters are most often depicted in stereotypical roles as highly sexualized figures and in submissive roles (Beasley & Standley, 2002; Dietz, 1998; Harrison & Cantor, 1997). Following the female-as-sex object perspective, researchers conducted content analyses using clothing as an indicator of sexuality (Downs & Smith, 2005; Beasley & Standley, 2002). The findings indicate that compared to their male counterpart, female characters are represented in a hypersexual way: Wearing sexually revealing clothing (e.g., low-cut clothing showing bare arms and cleavage) and inappropriate attire (e.g., being partially nude; Beasley & Standley, 2002; Downs & Smith, 2005). More importantly, there was no difference among evaluative ratings ("E" for everyone, "T" for 13+, "M" for 17+), which means that children could see voluptuous women images as frequently as adults do in video games.

On the other hand, male characters are usually depicted as muscular, with strong bodies and aggressive roles, and are generally portrayed in a light that seems to bolster male strength and domination (Harrison & Cantor, 1997). Some video game studies suggest that female characters are portrayed as sex objects who are featured in games only to provide sensual pleasure and excitement; they are bystanders rather than active participants (Children Now, 2000; Dietz, 1998). Similarly, Provenzo (1991) has shown that females are often depicted as either victims of violence or as prizes in video games.

This marginalization of female characters in video games is especially notable in sports games. Resembling the lack of women's sports in traditional media coverage the number of female sports video games also lags far behind male sport games (Salwen & Wood, 1994; Tuggle & Owen, 1999). As some scholars point out (Kight & Giuliano,

2001), such disparity not only reflects unbalanced media coverage, but can inaccurately suggest that women's sports are inferior to men's sports. In addition to their underrepresentation, female athletes are subject to misrepresentation in video games as well. When female athletes are featured in video games, it is done in a way that reinforces traditional gender stereotypes. That is, female athletes' physical attractiveness and femininity are often stressed over their athletic competence, whereas male athletes' physical appearance and heterosexuality rarely overshadow their athletic performance and capability.

Although researchers have examined negative stereotypical representations of Black Americans as criminals primarily in the traditional media content (e.g., news programs and films), such representations are prevalent in video games as well. Still, compared to the research on gender stereotyping, even fewer studies have examined racial stereotyping in video games. According to a handful of studies however, some of the stereotypes found in traditional mainstream media were replicated in video games. The characters were predominantly White males comprising 71% of the main characters (Brand, Knight, & Majewski, 2003). Other researchers similarly found that across the top 14 video games with 34 human characters coded, a majority (84%) of them were White, while 4% were Hispanic and 12% are Black (Mou & Peng, 2009). Children Now's (2001) report basically shows the analogous pattern of statistics. The majority of heroes were White males (86%) while non-White males were generally portrayed in stereotypical roles: Eight out of ten African American males were portrayed as competitors in sports games. Latinos only appeared in sports games, most of them baseball and seven out of

ten Asian characters were portrayed as wrestlers. These findings suggest that the only exception to minorities playing a leading role can be found in sports games.

One study pointed out a stereotypical role that Black females play in violent video games (Dill, 2006). In this study, nearly nine out of ten (86%) African American females were victims of violence in the games that were surveyed. Their victimization rate was almost twice that of White females. In sports games, eight out of ten (79%) African American males engaged in physical and verbal aggression compared to only 57% of White competitors (Dill, 2006). This study found that Black and Latino men were more likely to be portrayed as athletes or aggressors. Asians were often portrayed as intellectually superior but physically inferior (Dill, 2006).

Chapter V

Violent Video Game Effects on Implicit Stereotyping and Aggressive Behavior – The Current Study

The previous two chapters reviewed the theories (e.g., neo-associationistic model or priming framework, observational learning, conditioning, emotional desensitization, etc.) that tie observation violence in traditional media (e.g., television) to aggression. These theories can equally well be applied to explaining how playing video games with stereotyped characters can influence players' attitudes and behaviors. In fact, interactive media, such as video games, may have even stronger learning effects on stereotypes than traditional forms of media because their interactive nature reinforces the learning of stereotypical beliefs and attitudes through repetition and actual, not vicarious reward (Anderson & Bushman, 2001; Bandura, 1977; Huesmann, 2007). The repeated playing of video games should thus not only increase the likelihood that players encode and imitate the gender- or race-based stereotyped attributes and conduct, but should also increase opportunities to put the modeled activities into practice (i.e., active "rehearsal" of stereotyped scripts).

The social cognition literature suggests that stereotypes guide how we think, evaluate, and behave (Ajzen & Fishbein, 2000). According to this perspective, individuals' attitudes follow from activation of existing stereotypes in their memory, and then influence subsequent behavior. Whether spontaneously triggered or consciously

controlled[6], understanding the link between stereotype activation and subsequent behavioral response is important. Still, understanding which underlying process explains the link between activated stereotypes and behavior seems just as important. Researchers have proposed that stereotype activation can lead automatically to changes in an individuals' attitudes (i.e., implicit attitudes), which in turn, can predict behavioral outcomes (Bartholow, Dickter, & Sestir, 2006; Dijksterhuis, 2001; Wheeler, Jarvis, & Petty, 2001). Once a certain attitudinal state or response is induced, it seems to affect behavior. Thus, stereotype-induced thoughts and feelings seem to provide an important mediating mechanism through which the activation of stereotypes translates into behavior.

The current study seeks to examine the potential mediating role of "implicit" (or automatic) stereotyped responses triggered by playing violent games in affecting aggressive behavior. Numerous studies have shown that activating a stereotype leads people to behave in ways that are consistent with the activated stereotype (Wheeler & Petty, 2001). For instance, one study showed that activating the stereotype of the elderly (i.e., "senile") induced young college students to walk more slowly and to demonstrate poor memory (Bargh, Chen, & Burrows, 1996). In a study using video games, Correll and his colleagues (2001) showed that participants tend to shoot more rapidly at armed Black targets than armed White targets, and were more likely to inadvertently shoot at an unarmed target if he was Black. This finding suggests that stereotype activation (i.e., making a stereotypic association between "African American" and "dangerous" or "violent") can lead to potentially negative behavioral consequences.

[6] Please refer to Chapter IV for a thorough review of automatic vs. controlled process of stereotype activation.

Researchers employing a priming technique generally believe that the process through which exposure to stereotype primes can impact behavior occurs outside people's conscious awareness, because they are not necessarily aware of both its activation and its use [7] (Bargh, 1996; Bargh et all, 1996; Chen & Bargh, 1999; Dijsterhuis, Bargh, & Knippenberb, 2000; Wegner & Bargh, 1998). Once an affective state is elicited, it is presumed to color evaluative judgments and corresponding behavior. Accordingly, it is reasonable to argue that is likely to bring about stereotypic attitudes and behaviors consistent with the stereotype.

A few video game studies on gender stereotyping suggest that negative representations of female characters in many video games can lead players to learn, emulate, and internalize the values and norms associated with stereotypes of women as sexual objects and victims of violence, who are vulnerable and ineffective (Brenick, Henning, Killen, O'Connor, & Collins, 2007; Dietz, 1998; Harrison & Cantor, 1997). Stereotypical representations of male characters in violent games (i.e., as being physically more aggressive and violent than females) can also be expected to influence players' gender-related stereotypes concerning aggression.

However, none of the published studies have looked at how attitudes shaped by playing violent games with gender- and sexually-stereotyped characters can mediate the relation between violent-game playing and the exhibition of aggressive behavior[8]. One

[7] Of course, as discussed in Chapter IV, some researchers (e.g., Devine, 1989;1995) argue that attitudes and behaviors are not always formed automatically and effortlessly but are rather preceded or controlled by conscious cognitive activity. Please see Chapter IV for a full review of automatic vs. controlled processes of stereotyping.

[8] Based on Bandura's (1977) and Huesmann's (1986; 2003) theorization however, it can be argued that those who already give credence to gender stereotypes will be more susceptible to such effects than those with fewer existing gender stereotype-related cognitions. Also, particularly in the case of a young audience, the learning of stereotyped behavior will depend upon the extent to which he or she identifies with the game character who performs the stereotype-consistent behavior, or who displays attributes stereotypically

goal of my dissertation is to address the question concerning whether and how stereotypical attitudes (prompted by the playing of violent male or violent female characters) affect the players' own aggressive behavioral tendencies.

In relation to racial stereotypes in the media, African-American males are frequently portrayed and perceived as being more violent and aggressive than are individuals of other races. For example, research has shown that Blacks are overrepresented as perpetrators of crimes, whereas Whites are overrepresented as victims of crimes in television news (Dixon & Linz, 2000). In a more recent study, Dixon (2008) further reported that those who endorse racial stereotypes, as opposed to those who reject stereotypes, are more likely to demonstrate negative responses toward Black or unidentified suspects. These studies suggest that negative stereotypical representations of racial groups in the media can shape our attitudes and perceptions.

Although researchers have examined negative stereotypical representations primarily in the news media, such representations are prevalent in violent video games (e.g., shooting games) as well. Priming literature suggests that playing racially stereotypical games should facilitate the automatic accessibility of stereotype-linked cognitions, and repeated playing should result in stronger effects due to combined effects of frequent stereotype activation and a decreased threshold level of activation. This is because, as media research employing a priming framework suggests, media content plays an important role in priming or activating existing stereotypes in one's memory, and these activated stereotyped scripts and schemas in turn can influence subsequent processing of new information involving stereotypes (Huesmann, 1986; 2003). Thus,

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associated with a specific gender. The more frequent the playing and the more attractive the stereotypes represented by the male and female media characters, the more likely it is that a child will learn and adopt gender stereotypes associated with those characters.

existing negative stereotypes about African-Americans (as being characteristically more violent than other racial groups) in one's cognition can be assumed to be activated by playing a violent African-African character, and subsequently can influence the player's own performance (i.e., shooting) to become more or less aggressive.

However, the empirical evidence focusing on behavioral manifestations of media priming of stereotypes related to aggression and violence is lacking. Moreover, the potential role that automatic attitudes play in predicting aggressive behavior is yet to be systematically examined and understood. The current dissertation intends to fill this gap in the literature by investigating the potential role of stereotyped attitudes in mediating the relation between violent game playing and aggressive behavior.

Two possibilities seem theoretically plausible. First, it might be that each gender or race automatically behaves consistently with the stereotypes they believe about their own gender or race. If that were the case, then playing a character that fit a more violent stereotype (male as opposed to female, or Black as opposed to White) would only have an effect when the player's race or gender was congruent with the race or gender of the character. A more likely possibility is that the most important cause of behaving aggressively after playing a violent game is how much aggression is primed. If this is the case, then playing a stereotypically more violent character (male or Black) would prime more aggression regardless of whether the player's race and gender are congruent with the characters. Based on this thinking, and drawing from the tenets of social learning theory and cognitive information processing theory, I propose the following six hypotheses.

Hypotheses

In these hypotheses, either the race or gender of the video game characters being played serves as a media prime that is expected to affect the players' attitudes and behavior. The underlying idea is that taking on the role of (and playing against) a specific race or gender that is presumed be associated with violence and aggression (e.g., Black or male) should increase the accessibility of aggressive cognitions stereotypical of that race or gender (i.e., African Americans or men are aggressive). It follows that this activated race or gender stereotype is likely to increase stereotypic attitudes and behaviors consistent with the primed stereotype.

The current study also intends to examine the potential mediating influence of the implicit stereotype activation on the relation between violent game playing and aggressive behavior. Would exposure to gender or racially stereotyped media stimuli (e.g., a violent Black game character) influence behavior through the changes in stereotyped beliefs (i.e., Blacks are more aggressive than Whites)? More specifically, it is expected that taking on the role of a violent Black (or male) character would prime implicit stereotypical attitudes toward Blacks (or men), and these activated attitudes in turn would be expected to intensify subsequent aggressive behavior. In accordance with Baron and Kenny (1986), the mediating effect of implicit attitudes can be obtained if (a) the manipulation of stereotype cues in video games (i.e., playing a violent character of a different race or gender) influence implicit stereotypical attitudes concerning aggression, (b) there is a significant positive association between implicit stereotyping and aggressive behavior, and (c) a significant direct effect of the stereotype cue manipulation on

aggressive behavior becomes substantially reduced (or even becomes nonsignificant) when accessibility of implicit attitudes are first partialed out. In the absence of empirical evidence concerning the extent to which implicit attitudes mediate aggressive behavioral outcomes, no specific prediction is made regarding full vs. partial mediation. The first three hypotheses deal with gender stereotypes, while the last three deal with racial stereotypes.

Hypothesis 1: Playing an aggressive male character, as opposed to an aggressive female character, will activate stronger implicit "males are aggressive" stereotypes (i.e., males are more violent than females) in both male and female subjects.

Hypothesis 2: Stronger implicit "males are aggressive" stereotypes will lead to greater aggressive behavior in both male and female subjects.

Hypothesis 3: Playing an aggressive male character, as opposed to an aggressive female character, will directly prime aggressive behavior independently of any effect mediated through aggressive male stereotypes.

Hypothesis 4: Playing an aggressive Black character, as opposed to an aggressive White character, will activate stronger implicit "Blacks are violent" stereotypes (i.e., Blacks are more violent than Whites).

Hypothesis 5: Stronger implicit "Blacks are violent" stereotypes will lead to greater aggressive behavior.

Hypothesis 6: Playing an aggressive Black character, as opposed to an aggressive White character, will directly prime aggressive behavior independently of any effect mediated through aggressive Black stereotypes.

The conceptual models for the proposed hypotheses are presented in Figure 1 (Hypothesis 1-3) and Figure 2 (Hypothesis 4-6).

The six hypothesized relations focus on the role of gender and race of the video game characters in stimulating stereotyping and aggressive behavior without taking the player's gender or race into consideration. Should the hypothesized effects on implicit stereotyping (H1 and H6) differ by the gender and race of the player? Because the available sample contained very few non-White subjects, the question about race cannot be investigated. However, the following question about gender can be tested.

> RQ1: Do the hypothesized relations (H1-H6) differ by the participants' gender (male vs. female)? For example, are the priming effects for playing a male or a Black character on the stereotype that males or Blacks are violent equally strong for male and female participants (H1 and H4 respectively)? With respect to aggression, is the effect of playing a violent male character on aggressive behavior equally strong for male and female participants (H3 and H6 respectively)?

Experiment 1: Violent Video Games, Implicit Gender Stereotyping, and Aggressive Behavior

Method

Experiment 1 investigates how gender cues present in violent video games influence the player's gender stereotypes concerning aggression, and how this attitudinal response shapes subsequent aggressive behavior indicative of those stereotypes. It is hypothesized that playing a violent male character, as opposed to a violent female

character, will lead to stronger implicit gender stereotyped attitudes concerning aggression (i.e., that males are more violent than females). Further, playing with violent male characters should motivate a participant to behave more aggressively (than playing with female characters). This is because implicit stereotyping is hypothesized to mediate the relation between exposure to gender stereotypical primes and behavior.

As discussed earlier, aggressiveness is typically perceived as a masculine trait rather than a feminine trait. For a woman to evaluate a man as lacking masculine qualities or for a man to evaluate women as aggressive and violent may violate social expectations. Consequently, studies of gender stereotypes may be particularly subject to social desirability effects in self-reports. For this reason, rather than using a self-report that may be fraught with social desirability biases (Greenwald, Banaji, Rudman, et al., 2002), I decided to assesses gender stereotyped attitudes using implicit measures of stereotypes. In particular, the current investigation employs the Implicit Association Test (IAT; Greenwald & Banaji, 1995; Greenwald, McGhee, & Schwartz, 1998).

Participants. Participants were 242 undergraduate students (66% female students) enrolled in the introductory communication course at the University of Michigan. About 95% of the participants were White. Students received credit in exchange for their voluntary participation.

Stimuli. Two violent video games titled “Street Fighter IV” and “Virtua Fighter 5” served as the experimental stimuli in this study. Both games are “Teen” rated games that may contain mild suggestive themes and violence. In these games, players engaged in one-on-one combat (by kicking, punching, and using special abilities like fireballs, flying moves, and electrical strikes) with a large cast of male and female characters. The

participants played the game as a male or a female character against a character of the same gender (i.e., participants playing a male character fought a male character and participants playing a female character fought another female character). All the game characters were White in order to prevent a potential confounding effect of race.

Measures.

Implicit gender stereotypes about aggression. The IAT (Implicit Association Test) was used to assess participants' implicit gender stereotyping about aggression. This test assesses the implicit association between a particular class of people (e.g., males, females, minorities) and attributes that are assumed to underlie the particular social group. (Greenwald & Banaji, 1995; Nosek, Greenwald, & Banaji, 2005). Numerous studies have used IAT measures to assess implicit stereotype attitudes on a variety of topic (e.g., race, age, gender, etc.) and indicated acceptable level of measurement reliability and validity (Nosek, Greenwald, & Banaji, 2005; Rudman, Greenwald, Mellott, & Schwartz, 1999; Farnham, Greenwald, & Banagi, 1999). In particular, research examining sex- and ethnicity-based discrimination has shown convergent and predictive validity of the IAT (Rudman & Kilianski, 2000).

Pairing of two categories (i.e., gender and attribute) is hypothesized to be cognitively less challenging when the two categories are well associated in the network than when the categories are less associated with each other (Greenwald & Banaji, 1995). For example, coupling a violent word (e.g., aggressive) with a male name (Brian) is considered easier than coupling a violent word with a female name (Jessica), because the former is more stereotype congruent than the latter (i.e., men are generally considered more aggressive than women). The pairing of a male name and violent attribute (e.g.,

Brian- aggressive) represents the stereotype-congruent condition and the pairing of a female name and violent attribute (e.g., Jessica – violent) represents a stereotype-incongruent condition.

Past research examining implicit stereotype suggests that the pairing of stereotype congruent categories requires shorter response time than the pairing of stereotype-incongruent categories (Greenwald & Banaji, 1995). According to Rudman and her colleagues (2001), "this relative difference in response latencies (abbreviated as 'the IAT effect') indirectly assesses the strength of the implicit stereotypic association" (p. 1165).

This Gender IAT measures the strength of automatic association between gender-related category (i.e., male and female names) and attributes that are assumed to underlie male and female characteristics concerning aggression. The IAT version employed two main categories (gender and aggression) each having two sub-categories – 1) gender: male vs. female and 2) violence: violent vs. nonviolent. Participants were required to decide rapidly whether a word belongs to one of the four sub-categories defined by this classification: male, female, violent, nonviolent. The IAT used a total of 32 stimulus items including eight male names (e.g., Michael, David, Joseph), eight female names (e.g., Sarah, Jessica, Rachel), eight violence-implying attributes (e.g., violent, hostile, fighting, destructive, etc.), and eight non-violence-implying attributes (e.g., nonviolent, peaceful, yielding, compliant, etc.). The complete set of words used are shown in Appendix A.

Subjects were asked to press one computer key whenever a word from one subcategory of aggressiveness or one subcategory of gender appears on the screen and the other key when a word from either of the other subcategories appears. One-half of the

time they were required to press one key for male names or violent words and the other key for female names or non-violent words. The other half of the time they were required to press one key for female names or violent words and the other key for male names or non-violent words. A stronger stereotype that males are violent should result in faster (lower) reaction times for the pairings of males with violent words and females with non-violent words than for males with non-violent words and females with violent words. The Gender IAT score was computed as the average time for the non-stereotypical pairing minus the average time for the stereotypical pairing; so a higher score indicates greater implicit stereotypical beliefs that males are violent compared to the belief that females are violent. The exact syntax for computing the difference scores is shown in Appendix C.

Aggressive behavior. Lieberman's Hot Sauce Paradigm (1999) was used to estimate participants' overt aggressive behavior. This paradigm assumes that selecting extremely spicy hot sauce for another person to consume – a person who is described as not liking hot sauce – is an aggressive behavior. Furthermore, the amount of hot sauce selected is a measure of the amount of aggression. The materials used for this hot sauce allocation measure include the following: hot sauce, an empty cup to place the hot sauce into, a cup of water, a spoon, a wooden stick, a large container with a bunch of folded slips of paper that says "category1: hot and spicy," and a tray. The weight (in grams) of hot sauce allocated in a cup was used as an aggressive behavioral outcome measure in the current study. The weight of the cup (.08g) was subtracted from the total weight of hot sauce before being entered into a computer.

Video game survey. Participants' video game usage was measured by a self-report survey containing questions such as "How often do you play video (or computer) games?" ("1"= never to "5"= often), "During an average week, how many hours do you spend playing video games?" ("1" = less than1 hour to "5" = more than 7 hours), or "How competitive are you to win the game when you play video games? ("1" = not at all competitive to "3" = very competitive).

Food preference survey. Participants' food preferences were measured by a self-report survey asking them to indicate how much they like foods with six different flavors. Six questions include: How much do you like "spicy foods like very hot salsa," "sour foods like lemons," "sweet foods like honey," "pungent foods like garlic," "bitter foods like herbs and spices?" and "salty foods like salty chips?" Each response is rated on a 5-point-Likert Scale ("1" = not at all to "5" = a lot).

Procedure. Upon arrival at the lab, participants were introduced to the study and asked to fill out an informed consent form. After completing the consent form, the participants were randomly assigned to one of two conditions: 1) a violent male or 2) a violent female condition. The participants were told that the researchers were interested in studying "computer games and how they relate to human cognition." The experimenter also told the participants that there were two parts in the study. Specifically, the first part involved "speed of perception" and the second part involved "impression formation." In the first part, the participants would work on the Gender IAT, which was described as a speed perception task, after playing a computer game. The second part of the study was introduced as ostensibly involving another partner who would complete surveys about video game and food preferences, as would the participant, to help them

form impressions of each other. The participants were told that their partner, whom they would never meet, was in another room down the hall. The researcher told the participant: "Sometimes we perform impressions of others without meeting them, such as when an employer forms impressions of job candidates by looking at their resumes. You and your partner will be completing some tasks before you form impressions of each other, such as telling each other what types of video games you like to play and what types of food you like to eat."

Following this introduction, the participants were asked to complete an on-line questionnaire containing questions about their video game habits and uses and their taste preferences for food. They were told that after they completed the survey, a computer screen would generate the video game and food survey responses "completed by their partner" while their own responses would be shown to their partner. The participants were instructed to go over their partner's responses carefully. This was done in order to make sure the subject would become aware of the confederate's purported dislike of hot and spicy food. The reported rating of the bogus partner's response on preference for "spicy-like hot salsa" was always "1" on a 5-point scale with "1" meaning no liking at all. After giving the instructions, the researcher explained that he or she needed to remain blind to all aspects of the experiment, including the responses on the preference inventory, and the researcher left the room. Thus, when participants received the information that their partner disliked spicy food, they were assured that the researcher was not aware of their partner's dislike of spicy foods.

After a few minutes the researcher returned to the room and the researcher explained that a fighting game called "Street Fighter IV" (or "Virtua Fighter 5") would be

randomly selected for the participants to play. They were told that their partner would also play the game. All participants in violent male and female fighter condition played against a character of the same gender (i.e., participants playing a male character fought a male character and participants playing a female character fought another female character). The participants were briefly instructed how to play the game.

After 15 minutes of game playing, the participants took the Gender IAT, which required about 10-12 minutes including instructions. Immediately after the participant completed the Gender IAT the researcher returned to the room with a large container with a bunch of folded slips of paper indicating "CATEGORY1: HOT AND SPICY." The researcher said that before he or she let them form impressions about their partner, the researcher wanted them to make a small decision for their partner and asks them to select one slip of paper from the hat. The participants were told that, "Before we ask you to tell us your impressions about your partner, we want you to select a flavored dip for your partner to taste. Please select one slip of paper from this container. Each paper contains one of the six flavored dips listed in the food preference survey. Your partner will get the dip you randomly select from the container."

Of course, the participants would be selecting "HOT AND SPICY" no matter which paper slip they selected because all the paper contained the world "CATETORY1: HOT AND SPICY." After the participant selected one slip, the researcher showed the selected flavor to the participant and, said, "You have selected hot and spicy flavor for your partner's food sample. I will be back with the hot sauce materials." The researcher returned to the room with the hot sauce allocation materials and says, "You will decide the amount of hot sauce to be allocated to your partner to try. Your partner needs to eat

the whole amount of hot sauce you determine to put in this cup." The participants were also told that they would also have to eat a differently flavored food from the list, with the amount to be decided by their partner. The participants were specifically instructed to select only one sauce from the three choices (least hot to the hottest sauce), and encouraged to try a small amount themselves with a toothpick just to see how it tasted. They were told that it is okay not to take a sample if they don't want to do so. After the cup was filled with the desired amount of sauce, the researcher left the room and measured and records the weight of hot sauce. After the researcher returned to the laboratory room, participants completed a brief survey that assessed whether they were doubtful of any part of the experiment. And then the participants were fully debriefed and thanked. The entire experiment took less than an hour.

Results and Discussion

Descriptive statistics and distributions for all measures were checked before other analyses were conducted. Since both outcome measures (implicit gender stereotype activation and aggressive behavior) showed highly, positively skewed distributions (i.e., the skewness statistic was greater than 1 and the kurtosis was greater than 3, indicating a leptokurtic distribution), a logarithmic transformation was performed to improve the statistical assumptions of normality and homogeneity of variance. Data were log base 10 transformed after modifying the data to address zero values ($x + 0.001$) for aggression scores measured by the weight of hot sauce. Similarly, data were log base10 transformed for the Gender IAT reaction time scores after modifying the data to address negative values ($x + 0.34$). The log-transformed means, standard deviations, and intercorrelations for the experimental condition, implicit stereotyping, and aggression are shown in Table

1. Because all hypotheses were unidirectional, one-tailed tests of significance were employed in the following analyses. Although two-sided tests permit the detection of an effect that falls in the opposite direction, the consequences of missing an effect in the untested direction can be safely ignored because the direction of the effects had been postulated in advance. Moreover, using a one-tailed test has an advantage over a two-tailed test (assuming that I have accurately predicted the direction of the effect) by reducing the probability of a Type II error (i.e., more power).

Hypothesis on implicit gender stereotype activation. In the first hypothesis, it was expected that playing violent male characters, relative to playing violent female characters, would lead participants to automatically associate males with violence to a greater extent. Furthermore, it was hypothesized that the stronger automatic activation of the "males are violent" stereotype should increase subsequent aggressive behavior.

The implicit gender priming effect was computed by subtracting the mean latency for identifying the stereotype-consistent task (e.g., male name – violent word, female name –nonviolent word) from the stereotype-inconsistent task (e.g., female name – violent word, male name – nonviolent word). Thus, higher positive difference scores reflect greater implicit gender bias pertaining to more aggression from males. It was expected that taking the role of a violent male character would activate the stereotype that men are aggressive to a greater extent than taking the role of a violent female character. This effect should be revealed by higher positive difference scores on the Gender IAT task after playing a game as a male character compared to playing a game as a female character.

The significant positive correlation in Table 1 between condition and implicit

gender stereotyping confirms the hypothesis that playing male characters leads to more violent stereotyping associated with men. To test this hypothesis directly in terms of mean scores, a one-way between-subjects ANOVA was also conducted. There was a significant effect of gender priming on implicit stereotype activation, $F(1, 236) = 8.641$, $p = .002$. Participants who played a violent *male* character showed more stereotyping of men as violent on their Gender IAT scores (i.e., greater gender stereotype activation) than did participants who played a violent *female* character. The log-transformed means and standard deviations of the Gender IAT scores for the male and female conditions are displayed in Table 2.

Hypothesis on aggressive behavior. The third hypothesis predicted that taking the role of a male character should induce the subjects to behave more aggressively than taking the role of a female character among both male and female subjects. As described in the methods section, Lieberman's Hot Sauce paradigm (Lieberman et al., 1999) was used to assess participants' overt aggressive behavior in the current study. More specifically, the log base 10 weight (in grams) of hot sauce allocated in a cup served as a measure of aggressive behavior. Based on this measurement, it was predicted that, compared to the participants who played violent male characters, those who played violent female characters should administer more hot sauce to their confederate partner when asked to determine how much hot sauce to give him or her.

Again, the correlation between aggression and condition in Table 1 is consistent with this hypothesis. To test this hypothesis directly in terms of mean scores, a one-way between subjects ANOVA was also conducted. It showed a significant effect of gender priming via video game playing on aggressive behavior, $F(1, 237) = 18.85$, $p < .001$.

Participants who played violent *male* characters assigned greater amounts of hot sauce to their confederate partner (i.e., greater aggression) than did participants who played violent *female* characters. Both the raw and the log-transformed means and standard deviations of aggressive behavior for the male and female conditions are also displayed in Table 2.

Mediation analysis. The next question in the current study concerned the degree to which the effects of gender priming (via playing a violent game character of a different gender) on aggression might be mediated by automatic stereotype activation, assessed by the Gender IAT scores. For example, are the data consistent with a hypothesized causal model in which playing a violent *male* character as opposed to playing a violent *female* character influences implicit stereotyping concerning aggression (i.e., the stereotype that men are more violent than women), and in turn, do implicit attitudinal responses influence aggressive behavior?

The hypothesized mediation effect was tested by estimating the paths of the structural equation model shown in Figure 3. The independent variable was the experimental condition (Gender Priming via playing violent male vs. violent female game character); the dependent variable was Aggressive Behavior measured by the weight of hot sauce (in grams); and the mediator was Implicit Gender Stereotype Activation, assessed by the Gender IAT score. This model is fully saturated (i.e., 0 degrees of freedom), and thus the interpretation of the $\chi 2$ statistic and other fit indices would be meaningless. This is because by definition, the fully saturated model always "fits perfectly" (e.g., CFI = 1.000, NFI = 1.000, etc.)

In order to test for this mediation effect, the bootstrap procedure in AMOS was

used. Bootstrapping is a non-parametric method for assessing indirect effects through repeated subsampling (Preacher & Hayes, 2004; Preacher et al., 2007). This approach has an advantage over alternative methods of testing mediation (e.g., the Sobel test) of not requiring normally distributed variables. For this reason, the raw data were used in the current SEM analysis because the bootstrap estimator implemented in AMOS (e.g., Bollen-Stine bootstrapping procedure) effectively correct for the multivariate non-normality (Bollen & Stine, 1993).

As shown in Figure 3, contrary to the prediction made in Hypothesis 2, implicit gender stereotyping did not significantly predict aggression ($b = 0.05$, $p = .227$). Consequently, the mediation analysis showed a non-significant mediation (or indirect) effect of stereotype activation on the relation between gender priming and aggression ($p = .203$). The model confirms again the finding, consistent with Hypothesis 1, that the experimental condition (0 = violent female character, 1 = violent male character) had a direct significant effect on the Gender IAT score ($b = 0.20$, $p = .001$). That is, participants in the violent male condition demonstrated greater activation of the "men are violent" stereotype than did participants in the violent female condition. Also, as predicted in Hypothesis 3, the model shows that playing a violent male character directly influenced participants' aggressive behavior ($b = 0.29$, $p < .001$) independent of the mediated effects through implicit stereotype activation. ,

Moderating effect of participant's gender on the relation between the gender of character played and dependent variables. As a research question, I asked whether the gender of the participant might moderate the effects of playing a violent fighting game as a male or female avatar. In the original research question, the effect of the

participant's gender was proposed to be examined in order to determine whether the effects on stereotype activation and aggressive behavior were equally strong for male and female participants.

Moderating effect of participant's gender on gender implicit stereotyping. A 2 (gender of the video game character: male, female) × 2 (participant gender: 1 = female, 2 = male) ANOVA showed a significant interaction between the experimental condition (playing a male or a female avatar) and the gender of the participants, $F(1, 234) = 6.68$, $p = .005$. In males, the mean Gender IAT score significantly increased after playing as a violent male avatar ($M = -0.19$, $SD = 0.57$) as compared to playing as a violent female avatar ($M = -0.64$, $SD = 0.85$), $t(79) = 2.79$, $p = .004$. In females, the Gender IAT score did increase after playing as a violent male avatar ($M = -0.07$, $SD = 0.34$) as compared to playing as a violent female avatar ($M = -0.15$, $SD = 0.37$), but in the female participants this effect was not significant, $t(155) = 1.50$, $p = .070$. The reason for this gender difference in implicit stereotyping cannot be determined with certainty, but it may be due to the differences in the extent to which male and female participants identify with violent game avatars. The male participants may have identified more with both violent male and female avatars than did the female participants, and that may explain the larger differential effect on stereotyping that the violent male vs. violent female avatars had for male participants.

Moderating effect of participant's gender on aggressive behavior. A 2 (gender of the video game character: male, female) × 2 (participant gender: 1 = female, 2 = male) ANOVA showed no significant interaction between the experimental condition (playing a male or a female avatar) and gender of the participants, $F(1, 235) = 1.60$, $p = .104$.

However, there was a significant main effect of gender on the aggressive outcome, $F(1, 235) = 15.88$, $p < .001$. Male participants (M = -3.26, *SD* = 1.37) displayed significantly greater aggression than female participants (M = -3.99, *SD* = 1.40).

Experiment 2: Violent Video Games, Implicit Racial Stereotyping, and Aggressive Behavior

Experiment 2 investigates how racial cues present in violent video games influence the player's racial stereotypes concerning aggression, and how this attitudinal response affects subsequent aggressive behavior indicative of those stereotypes. As described above, it is hypothesized that playing a violent Black character, as opposed to a violent White character, will lead to stronger implicit "Blacks are violent" stereotypes concerning aggression (i.e., that Blacks are more violent than Whites). Further, taking the role of a violent Black character should lead a participant to behave more aggressively (than taking a role of a White character). This is both because the activation of implicit "Blacks are violent" stereotypes is hypothesized to lead to more aggressive behavior and because playing a violent Black character should directly prime more aggression.

As with the case of gender stereotypes, studies of racial stereotypes may as well be subject to social desirability effects in self-reports. Thus, rather than using a self-report, the current investigation also assesses racially stereotypical attitudes using implicit measures of stereotypes. In particular, the current investigation employs the Race - Weapons IAT to assess implicit racial stereotypes concerning aggression. As stimuli, this version of the IAT uses pictures of people's faces (Black or White) instead of names and pictures of violent objects (weapons) or non-violent objects as stimuli instead of violent or non-violent words.

Method

Participants. Participants were 141 undergraduate students (65% female students) enrolled in the introductory communication course at the University of Michigan. About half of the total participants were recruited from the general population. Most recruited participants were college students living in Ann Arbor area and did not significantly differ by gender and racial composition of the undergraduate communication students. Students received course credit for their participation and the recruited participants received ten dollars in exchange for their voluntary participation.

Stimuli. Violent video games titled "WWE Smackdown vs. RAW 2010" and "Fight Night Round 4" served as the experimental stimuli in this study. "WWE Samckdown vs. RAW 2010" is a wrestling simulation game and "FightNight Round 4" is a violent boxing simulation game. Both games allow the race of the protagonist to be changed. According to the Entertainment Software Rating Board (ESRB), both games are "Teen" rated video games that have content that may be suitable for ages 13 and older, and may contain violence and mild blood. As with a real-life boxing or wrestling match, these games allow a player to throw a punch against an opponent or throw objects such as "steel chairs, sledgehammers, bamboo swords, and tables to strike their opponents" and score points (http://www.esrb.org/ratings/synopsis.jsp?Certificate=27531). The participants played either as a Black or a White boxer (or wrestler) fighting against a character of the same race (i.e., Black avatars fought or wrestled against Black avatars and White fought or wrestled against White). All the game characters were male to prevent potential confounding effects of gender.

Implicit racial stereotyping concerning aggression. The Race-Weapons IAT (Greenwald et al., 1998) was used to assess participants' implicit racial stereotyping about aggression. The Race-Weapons IAT is a paradigm designed to assess individual differences in making implicit associations between race (Black American vs. White American) and violent attributes (Weapons vs. Harmless Objects). This measure uses pictures for both target stimuli (Black and White faces) and violent attributes (weapons and harmless objects). The images of harmless objects include a variety of neutral items such as a cell phone, a coke bottle, an ice cream, a cell phone, etc. The images of weapons include a variety of guns, knives, grenades, and other types of weapons. Photographs of six Black and six White faces are used as priming stimulus in the current study. They are Black and White digital images cropped for the central part of the faces (cropped at forehead and chin) so that the shape of the face, hair, and clothing are not shown. Both Black and White faces show neutral expression. The exact pictures used are shown in Appendix B.

Participants were asked to press one computer key whenever a picture from one subcategory of objects (weapons or harmless) or one subcategory of race (Black face or White face) appears on the screen and the other key when a picture from either of the other subcategories appears. One-half of the time they were required to press one key for pictures of Black faces or weapons and the other key for pictures of White faces or harmless objects. The other half of the time they were required to press one key for pictures of White faces or weapons and the other key for pictures of Black faces or harmless objects.

Priming research suggests that the pairing of stereotype congruent categories requires shorter response time than the pairing of stereotype-incongruent categories (Greenwald & Banaji, 1995). Thus, a stronger stereotype that Blacks are violent should result in faster (lower) reaction times for the pairings of Black faces with pictures of weapons and White faces with harmless objects than for pairings of Black faces males with pictures of harmless objects and White faces with weapons. The current study investigates whether this priming effect, using race-specific images as primes, reveals increased implicit associations between a particular race (i.e., Black) and violence following the playing of a violent game with a racially different protagonists (i.e., Black vs. White boxer or wrestler).

The Race-Weapons IAT score was computed as the average time for the non-stereotypical pairing minus the average time for the stereotypical pairing; so a higher score indicates greater implicit stereotypical beliefs that Blacks are violent compared to the belief that Whites are violent. The syntax that was used for computing the Gender-Violence difference score was also used for computing the Race-Violence difference scores (See Appendix C).

Aggressive Behavior. As in Experiment 1, Lieberman's Hot Sauce Paradigm (1999) was used again to estimate participants' overt aggressive behavior. The exact same materials used in Experiment 1 were used for the hot sauce allocation measure in the current experiment.

Video Game Survey. The same video game survey that was used in Experiment 1 was administered in Experiment 2.

Food Preference Survey. Participants' food preferences were measured by the same self-report survey used in Experiment 1. The survey asked the participants to indicate how much they like foods with six different flavors.

Procedure. The procedure for Experiment 2 was identical to that of Experiment 1, except that in Experiment 2 violent sports games were used as stimulus instead of street fighter games and the Race-Weapons IAT was used as one of the outcome measures instead of the Gender-IAT. After completing the consent form, participants were randomly assigned to play a violent sports game as a Black character or as a White character. Regardless of condition, participants played against a character of the same race (i.e., participants playing a Black boxer or Black wrestler fought a Black boxer or Black wrestler and participants playing a White boxer or White wrestler fought another White boxer or White wrestler).

The researcher told the participants that a sports-based fighting game called "WWE Smackdown vs. RAW 2010" or "Fight Night Round 4" was randomly selected for them to play. The participants were told that their partner would also play the game. After 15 minutes of game playing, the participants were instructed to take the Race-Weapons IAT, which required about 10-12 minutes including instructions. Immediately after the participant completed the Race-Weapons IAT, the researcher returned to the room and conducted the "hot sauce allocation" procedure to assess aggression exactly as described above for Experiment 1. After completing the "hot sauce allocation task," the, participants completed the same questionnaire as in Experiment 1 that assessed the their levels of suspicion regarding deceptions involved in the study and then were fully debriefed and thanked. The entire experiment took less than an hour.

Results and Discussion

Descriptive statistics and distributions for all measures were checked before other analyses were conducted. Similar to Experiment 1, both outcome measures (implicit racial stereotype activation and aggressive behavior) showed highly, positively skewed distributions. Thus, a logarithmic transformation was performed to better satisfy the statistical assumptions of normality and homogeneity of variance. Data were log base 10 (x + 0.001) transformed for aggression scores and log base10 (x + 0.34) transformed for the Race-Weapons IAT reaction time scores. In order to handle negative and zero values in the data, the constant values indicated were added to the data prior to applying the logarithmical transformation. Means, standard deviations, and intercorrelations for the experimental condition, implicit stereotyping, and aggression are shown in Table 3. As in Experiment 1, since all hypotheses were directional, one-tailed tests of significance were employed in the following analyses.

Hypothesis on implicit racial stereotype activation. It was expected that playing violent Black characters, relative to playing violent White characters, would lead participants to automatically associate African Americans with violence to a greater extent. Furthermore, it was hypothesized that the activation of stronger implicit racial stereotyped attitudes should increase subsequent aggressive behavior.

The implicit racial priming effect was computed by subtracting the mean latency for identifying the stereotype-consistent task (e.g., Black face -gun, White face- harmless object) from the stereotype-inconsistent task (e.g., White face –gun, Black face – harmless object). Thus, higher positive difference scores reflect greater implicit racial bias pertaining to more aggression by Blacks. In the Weapons IAT, it was predicted that

participants who were primed with Black faces would make faster responses in their identification of weapons, compared to those primed with White faces. It was expected that playing violent games featuring Black characters would magnify this automatic stereotyping. That is, taking the role of a violent Black character would activate the stereotype that African-American men are aggressive to a greater extent than taking the role of a violent White character. This effect should be revealed by higher positive difference scores on the Race-Weapons IAT task following playing a game as a Black character compared to playing a game as a White character.

The significant positive correlation in Table 3 between condition and implicit stereotyping confirms this hypothesis that playing Black violent characters leads to more stereotyping about Blacks as violent. To test this hypothesis directly in terms of mean scores, a one-way between-subjects ANOVA was also conducted. There was a significant effect of racial priming on implicit stereotyped attitude, $F(1, 137) = 3.135$, $p = .040$. Participants who played a violent *Black* character showed more stereotyping of Blacks as violent on their Race-Weapons IAT scores (i.e., greater racial stereotype activation) than did participants who played a violent *White* character. The log-transformed means and standard deviations of the Weapons IAT scores for the Black and White conditions are displayed in Table 4.

Hypothesis on aggressive behavior. In Experiment 2, it was also predicted that taking the role of a Black character in a violent video game should induce the participants to behave more aggressively than taking the role of a White character. As detailed in the methods section, Lieberman's Hot Sauce paradigm (Lieberman et al., 1999) was used to assess participants' overt aggressive behavior in the current study. More specifically, the

log base 10 weight (in grams) of hot sauce allocated in a cup served as a measure of aggressive behavior. Based on this measurement, it was predicted that, compared to the participants who played violent White characters, those who played violent Black characters should administer more hot sauce to their confederate partner when asked to determine how much hot sauce to give him or her.

Again the significant positive correlation between aggression and condition in Table 3 is consistent with this hypothesis. To test this hypothesis directly in terms of mean scores, a one-way between-subjects ANOVA was also conducted. It showed a significant effect of racial priming on aggressive behavior, $F(1, 138) = 11.13$, $p < .001$. Participants who played violent *Black* characters assigned greater amounts of hot sauce to their confederate partner (i.e., greater aggression) than did participants who played violent *White* characters. Both the raw and the log-transformed means and standard deviations of aggressive behavior for the Black and White conditions are also displayed in Table 4.

Mediation analysis. The next question in the current study concerned the degree to which the effects of racial priming (via playing a violent game character of a different race) on aggression might be mediated by automatic stereotype activation, assessed by the Race-Weapons IAT scores. For example, are the data consistent with a hypothesized causal model in which playing a violent *Black* character as opposed to playing a violent *White* character influences implicit stereotyping concerning aggression, and in turn, do implicit attitudinal responses influence aggressive behavior?

The hypothesized mediation effect was tested by estimating the paths of the structural equation model shown in Figure 4 with AMOS. As in Experiment 1, instead of

using the logged data, raw data were used in this mediation analysis because the bootstrapping procedure effectively takes care of the non-normal distribution of the sample. The independent variable was the experimental condition (Racial Priming via playing violent Black vs. violent White game character); the dependent variable was Aggressive Behavior, measured by the weight of the hot sauce (in grams); and the mediator was Implicit Racial Stereotype Activation, assessed by the weapons IAT score. Like the model analyzed in Experiment 1, this model is fully saturated (i.e., 0 degrees of freedom), and thus the interpretation of the $\chi 2$ statistic and other fit indices would be meaningless. This is because by definition, the fully saturated model always "fits perfectly" (e.g., CFI = 1.000, NFI = 1.000, etc.)

One can see that in addition to a significant direct effect of playing Black characters increasing aggression (b = 0.25, p = .001), there is a significant path from playing Black characters to greater implicit stereotyping of Blacks as violent (b = 0.24, p = .002) and from such implicit stereotyping to behaving more aggressively (b = 0.23, p = .003). To test whether the mediated path from condition through implicit stereotyping to aggression (0.24 x 0.23 = 0.0552) is significant, I again used the bootstrap procedure in AMOS. The results showed a significant mediation (or indirect) effect of stereotype activation on the relation between racial priming and aggression (b = .05, p =0.008).

The significance of the parameters in this model confirms the second set of hypotheses (H4-H6) in this study. As predicted in Hypothesis 4, the experimental condition (0 = violent White character, 1 = violent Black character) had a direct significant effect on the Weapons IAT score. That is, participants in a violent Black condition exhibited greater activation of "Blacks are violent" stereotype than did

participants in a violent White condition. As predicted in Hypothesis 5, higher Weapons IAT score significantly predicted greater aggressive behavior. This means that participants with stronger implicit "Blacks are violent" stereotype activation displayed greater aggression. Together, these paths indicate a significant effect of race of avatar on aggression that is mediated through the implicit "Blacks are violent" stereotype. Finally, independent of mediated effects through implicit stereotype activation, aggressive behavior was significantly predicted by the experimental condition. That is, playing a violent Black character directly influenced participants' aggressive behavior. This finding is consistent with the prediction made in Hypothesis 6.

Moderating effect of the participant's gender on the relation between race of character played and dependent variables. Unlike in Experiment 1, it was not possible to conduct a moderator analysis for race due to very few Black participants in the current study. Instead, I examined the potential moderating effect of gender on the hypothesized relations. In the original research question, the effect of the participant's gender was proposed to be examined in order to determine whether the effects on stereotype activation and aggressive behavior were equally strong for male and female participants.

Moderating effect of participant's gender on racial implicit stereotyping. A 2 (race of the video game character: Black, White) × 2 (participant gender: 1 = female, 2 = male) ANOVA showed a significant interaction between the experimental condition (playing a White or a Black avatar) and the gender of the participants, $F(1, 134) = 4.18$, $p = .022$. In male participants, the mean Race-Weapons IAT score significantly increased after playing as a violent Black avatar (M =0.06, SD = 0.55) as compared to playing as a violent White avatar (M =-0.43, SD = 0.46), $t(52) = 3.52$, $p = .001$. However, in female

participants, although the mean Race-Weapons IAT score did increase after playing as a violent Black avatar (M =-0.40, SD = 0.67) as compared to playing as a violent White avatar (M =-0.44, SD = 0.71), this effect was not significant, $t(82) = 0.26$, $p = .367$. In interpreting these results it is important to remember that in this experiment the avatars were always male. Thus, the male participants may have identified more with both the Black and White avatars than did the female participants, and that may explain the larger differential effect on stereotyping that the race of the avatar had for male participants.

Moderating effect of participant's gender on aggressive behavior. A 2 (race of the video game character: Black, White) × 2 (participant gender: 1 =female, 2 =male) ANOVA showed no significant interaction between the experimental condition (playing a Black or a White avatar) and the gender of the participants, $F(1, 135) = 1.83$, $p = .089$. There was no significant gender effect on the aggressive outcome.

The potential effects of participant's video game habits on outcome measures. In addition to the effects of participants' own gender on the outcome measures, the potential effects of the participants' various video game habit-related factors were examined. These measures included the frequency of video game playing, competitiveness, and identification with the video game characters. In the video game survey, participants were asked to answer how often they play video games ("1" = never to "5" = often) and how competitive they are when they play video games ("1" = not at all to "3" = very much). After playing video games for 15 minutes, the participants were also asked to indicate how much they identified with the character they played ("1" = not at all to "10" = very much). Among all these variables, only the frequency of the video game playing was significantly correlated with the activation of gender-violence

stereotypes (r = -.23, p< .001). This suggests that the more often the participants play video games, the less likely they are to automatically activate the association of males with violence. This negative correlation may be attributable to the desensitization effect – participants who consistently (or habitually) play video games may have been gradually desensitized to the violent male characters commonly featured in video games, making the activation of the male-violence stereotype less likely than those who seldom play video games.

However, further analysis revealed no significant moderating effect for the frequency of the game playing on the relation between gender of avatar and implicit stereotyping that males are violent, $F(4, 224) = 1.71$, $p = .075$. This suggests that past game experience does not seem to influence the effect of playing a violent male vs. violent female avatar on automatically making the association between males and violence. None of the video game habit-related variables other than the frequency of video game playing showed a significant correlation with the aggression measure in Experiment 1 or Experiment 2.

General Discussion

Summary and Implications

Taken together, the results of the two experiments suggest that a short-term experimental manipulation of the exposure to media content can affect implicit stereotyping and aggression. Compared to the participants who played female or White avatars, participants who played male or Black avatars displayed stronger stereotype activation and greater aggressive behavior. The present findings seem to be consistent with previous research, which have shown that violent media prime aggression or

aggression-related concepts, at least in the short term (e.g., Anderson & Murphy, 2003; Josephson, 1987; Roskos-Ewolsen et al., 2007; Uhlmann & Swanson, 2004). In particular, the current study extends the findings of Carnegy and Anderson (2005) in demonstrating that in addition to aggressive cognitions, stereotypes can be primed and can affect the subsequent cognitive processing and behavior. The data are also consistent with general findings of stereotype research that priming the racial stereotype automatically activates a link between Black men and negative stereotypes, such as violence and hostility (e.g., Abraham & Appiah, 2006; Dixon, 2007; Duncan, 1976). Unlike other research, however, stereotype activation in the current study was achieved through a subtle change in the race of the game avatars played by the participants. This attentionless priming by the race of the video game characters ensured that stereotypes were primed automatically or preconsciously while actively engaging with Black or White characters, and not by simply observing them on-screen.

In this study it was also demonstrated that the implicit stereotyped responses increased subsequent aggressive behavior. In Experiment 2, it was shown that taking on the role of a Black avatar (as opposed to a White avatar) evoked the "Black men are violent" stereotype, and such activation of stereotype-induced cognitions related to violence, effectively (but perhaps unconsciously) led to aggressive behavior. Hence, the implicit stereotyping process can be thought to explain why racial priming, through the manipulation of choice of the race of video game avatars, can make the player's own action to become more or less aggressive.

However, this causal link between stereotype activation and behavioral manifestation of that activated stereotype was evidenced only in Experiment 2. In

Experiment 1, while playing a violent male avatar effectively induced an automatic activation of the "men are violent" stereotype, this automatic gender stereotyping was not successfully translated into behavior consistent with the activated stereotype. To put it differently, gender-violence stereotype activation did not play a significant role in mediating the relationship between exposure to gender priming and aggressive behavior. This was true for both male and female participants.

In both Experiment 1 and Experiment 2, it was demonstrated that playing violent male and Black avatars directly primed aggression independently of implicit stereotype activation for both male and female participants. However, larger effects on implicit stereotype activation were found in male participants. That is, compared to female participants, male participants who played the violent male and violent Black avatars formed stereotype-congruent links, automatically connecting a specific gender (e.g., male) and a racial group (e.g., African Americans), respectively, to violence-related concepts to a greater extent.

Implications for Theory. This thesis has important theoretical and real-world implications. On a theoretical level, the findings add to an increasing body of research on the powerful effects of priming and suggest that the stereotyping process and its behavioral manifestation can be affected by the subtle racial and gender cues in video game playing. The present research also complements and extends the current models of media priming by showing that 1) media content can operate as a prime in a joint domain of stereotyping and aggression, and that 2) behavioral outcomes of violent media priming can not only be a direct result from the aggressive media prime itself, but also be mediated through the implicit stereotyping process activated by the media prime.

The results of this study reinforce the theoretical importance of priming as an implicit psychological process. Playing game characters primed stereotypes associated with the characteristics of those characters (their gender or race). In turn, the activations of those stereotypes primed subsequent behaviors (aggression) associated with the stereotypes (violent males or violent Black people). Independently of the stereotypes activated, playing a violent game also directly primed subsequent aggressive behavior. More specifically, the gender (Experiment 1) and the race (Experiment 2) of the video game character primed existing stereotypes in the participant's memory related to aggression (i.e., the cultural stereotype that "men are more violent than women" or that "Blacks are more violent than Whites"). As the priming literature suggests, such activation of these stereotypically linked concepts (e.g., African American men and violence) also primed aggression as a response to situations involving uncertainty or frustration (Bargh & Pietromonaco, 1982).

These results, and particularly the differences in the results associated with the gender of the participants, also lend support to the unified theory of implicit processes proposed by Greenwald et al. (2002). By integrating the basic assumptions of cognitive balance and cognitive dissonance theories (e.g., Festinger, 1957; Heider, 1958) and applying them to self-concepts and their associative connections, Greenwald and his colleagues (2002) proposed that "an attribute that is stereotypically associated with one's in-group should acquire positive valence" (p. 16).

Accordingly, male participants who associate themselves with male-stereotypic traits, such as aggressiveness, should also associate themselves with positive in-group identity. However, the strength of this implicit association between self and aggressive

traits may not be as strong among female participants who played violent male avatars in this study. This is because, as the imbalance-dissonance principle suggests, female participants are inclined to resist forming associations between their in-group (i.e., women) and concepts associated with out-group stereotypes (i.e., aggressiveness) (Greenwald et al, 2002).

Taken together, the observed gender differences in implicit stereotyping in Experiment 1 and Experiment 2 could be attributed to the differences in the extent to which male and female participants associated themselves with violent attributes of male video game avatars. The female participants may have resisted incorporating an out-group stereotype (i.e., aggressiveness) into their self-concepts, while male participants may have experienced greater identification with both violent male and female avatars than did female participants, and that may explain the bigger effect on implicit stereotype activation that the violent male vs. violent female avatars had for male participants.

Practical Implications. On a practical level, findings work to inform game players (especially young children), parents, researchers, and game producers about the effects that realistic game play can have on players. The findings of this study suggest that video game playing could lead to more or less stereotyping and stereotype-relevant behavior toward out-group or stereotyped members of a group in our society. Although this priming effect is supposed be temporary, the fact that frequent and repeated activation can increase chronic accessibility of stereotyped information and pertinent behavioral reactions makes this implication even more pressing. This is because chronically accessible cognitions are more likely than others to be used in the interpretation of social behavior (Bargh, 1984; Bushman, 1995; Higgins & King, 1981;

Price & Tewksbury, 1997) and therefore have more persistent effects on people's judgments and behavior than do other types of information that are not chronically accessible.

These implications are critical to the psychological and behavioral development in young children. Based Huesmann's script theory (1982, 1988), frequent interaction with stereotypical game characters and the repeated experience of violence associated with stereotyped characters may contribute to the formation of aggressive and stereotyped "scripts," which can make young players more susceptible to displaying long-term aggressive traits and behavioral tendencies. Research has shown that a characteristically aggressive child is particularly more prone to activate aggressive scripts in the presence of aversive cues and use aggressive scripts to deal with conflicts or social problems (e.g., Graham & Hudley, 1994; Taylor & Gabriel, 1989). Accordingly, continuous stimulation and use of aggressive scripts learned via frequent violent video game playing will increase the availability of other aggression-laden expectations and interpretations (Dodge & Crick, 1990) as well as the likelihood for enacting aggressive scripts, leading to greater aggressive outcomes in the future. This is true considering the nature of video game playing, which allows the child's aggressive scripts to be successfully reinforced and repeatedly rehearsed by various rewards (e.g., winning the game and gaining bonuses for killing, attacking, etc.).

Limitations and Future Research

As noted earlier in this chapter, a moderation analysis of the race of the participant was not possible due to the very few non-White participants available in the

participant pool. Future studies may explore the potential effect of participants' own race on stereotyping and aggression.

Another issue not addressed in the present research, but one that will be important to explore in the future, is whether the priming effect on aggression would be magnified or reduced when the confederate partner's race and gender were manipulated. In the current research, Lieberman's Hot Sauce Paradigm (1999) was employed to estimate participants' overt aggressive behavior. The participants were asked to determine the amount of hot sauce to be allocated to their partner to try, but of course, the partner never existed. In this research design, neither the gender nor the race of the confederate partner was identified. It would be interesting to discover whether the amount of aggression displayed by the participant against the bogus partner increases or decreases when the partner's gender and race are to be identified as an out-group member. Theoretically, the aggression should increase toward an out-group member, because people tend to show more favorable attitudes toward members of their own group than toward members of other groups (i.e., "in-group favoritism," Baumeister & Leary, 1995; Ostrom & Sedikides, 1992).

In addition to the in-group bias perspective, the need for positive self-identity provides another important theoretical reasons for the increased aggression toward out-group members. Positive self-identity has been proposed as one important motivating factor for explaining the stereotyping process (Tajfel, 1982). According to this perspective, engaging in stereotyping can be an effective way for many people to feel good about themselves, especially when there is no other available means of affirming oneself (Fein & Spencer, 1997). Thus, the extent to which a person is attached to and

values his or her own social group may influence how the person evaluates his group as opposed to other groups. Consequently, people may engage in negative evaluations of and responses toward others as a means of restoring positive sense of self and group image (Fein & Spencer, 1997).

Based on this theoretical framework of intergroup relations, it can be speculated that aggressive behavioral responses will be amplified when the confederate partner's gender and race is manipulated to differ from the participants' own gender and race (i.e., the confederate partner of another gender and a different race). Future investigation on this issue may confirm this hypothesis.

Although the nature and functioning of stereotyping are thought to mainly involve cognitive processes, literature on affect suggests that various affective components such as emotion, arousal, or mood states also influence memory and cognitive processing associated with stereotypes (e.g., Bodenhausen, 1993; Hamilton & Trolier, 1986; Srull, 1983; Stroessner & Mackie, 1993). Therefore, a future investigation examining how both cognition and affect can mutually influence each other in shaping stereotype formation and processes, as well as in producing prejudiced intergroup behavior, may provide important additional insights that the cognitive focus has overlooked in the existing stereotype literature.

Conclusion

Overall, the results of the current research provides considerable support for the theoretical and empirical research reviewed in Chapter IV concerning the inevitability of stereotype activation and its impact on subsequent perception and judgment, as well as the theoretical models of aggression reviewed in Chapter III. Indeed, past research has

shown that the media content influences people's later attitudes and behavior related to the content that was observed (e.g., Anderson, 1997; Bushman, 1995, Bushman & Geen, 1990; Josephson, 1987; Hansen & Hansen, 1998; Malamuth & Check, 1985; Pechmann, 2001; Wyer et al., 1985). However, none of these studies directly tested whether attitudinal responses can be actually translated into relevant behavior.

The findings of this dissertation research provide a unique insight into the media priming literature in two ways. First, the current study has empirically demonstrated an important step toward understanding the cognitive mechanisms underlying the media priming effects. More specifically, this study provided experimental evidence for the relationship between the implicit stereotyped responses prompted by a media prime and the behavioral outcome indicative of that activated stereotype. Furthermore, this study has integrated two different domains of media priming – the priming effects of violent media on aggression and the effects of media priming on stereotypes – through a relatively less-studied media channel (i.e., video games). The increasing popularity of computer games as a popular form of entertainment for both adults and young children in modern society makes the video game even more of a powerful tool for priming how we think and behave.

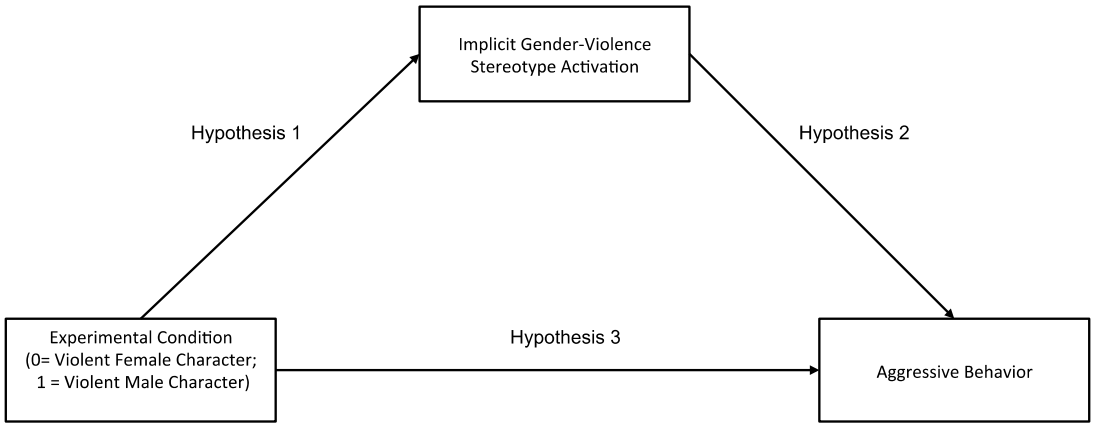


Figure 1. The conceptual path model showing the hypothesized relations between the independent variable (Experimental Condition), mediator (Implicit Gender-Violence Stereotype Activation), and dependent variable (Aggressive Behavior).

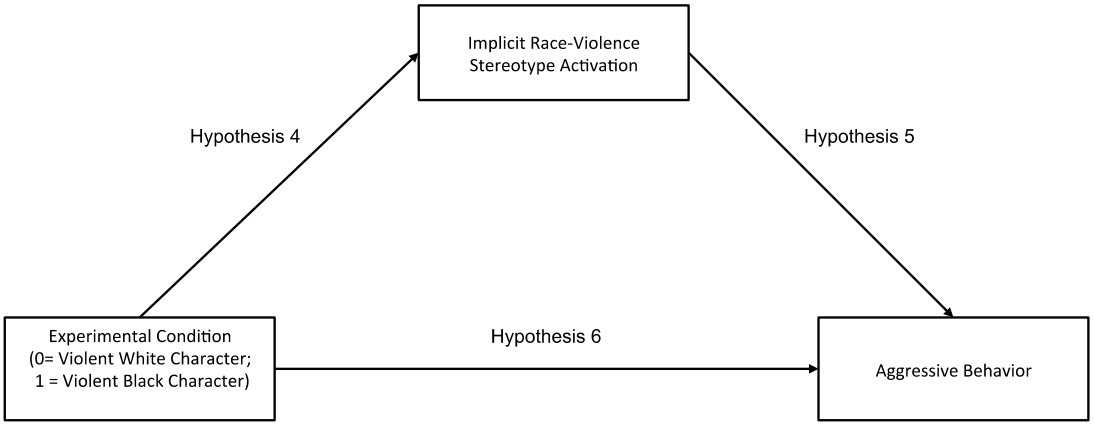


Figure 2. The conceptual path model showing the hypothesized relations between the independent variable (Experimental Condition), mediator (Implicit Race-Violence Stereotype Activation), and dependent variable (Aggressive Behavior).

Figure 3. The results of path model relating experimental condition (gender priming), implicit gender-violence stereotype activation, and aggressive behavior. The numbers represent standardized path coefficients. **denotes correlation significant at .01. N= 240.

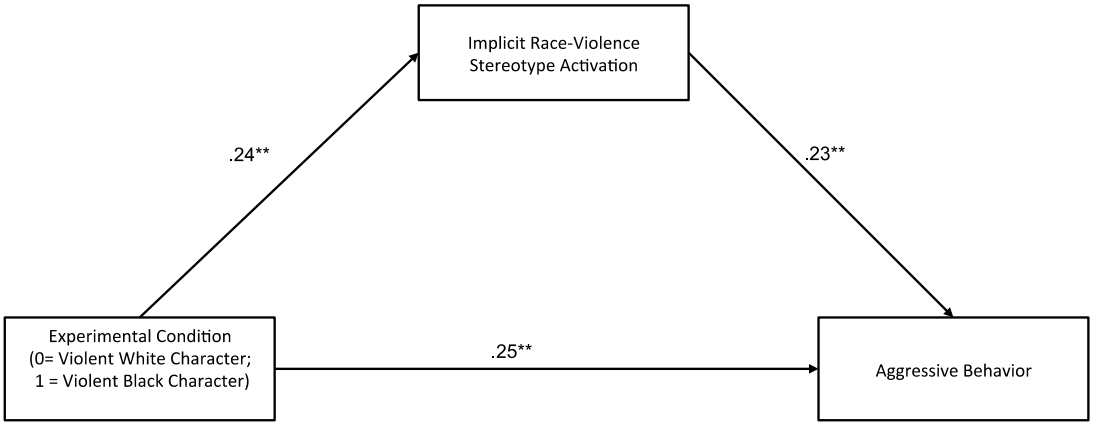


Figure 4. The results of path model relating experimental condition (racial priming), implicit race-violence stereotyping, and aggressive behavior. The numbers represent standardized path coefficients. **denotes correlation significant at .01. N=139.

Table 1.

Means, SD, and Intercorrelations of Gender Priming, Implicit Gender-Violence Stereotyping, and Aggressive Behavior

	Mean	*SD*	1	2	3
1. Experimental condition (0 = violent female character, 1 = violent male character)			1		
2.Implicit gender-violence stereotyping (Gender IAT score)	0.22	0.54	0.19**	1	
3.Aggressive behavior (Hot sauce weight)	3.74	1.43	0.27**	0.05	1

Note. N = 140. Numbers represent logarithmically transformed values. **denotes correlation significant at .01 level (one-tailed).

Table 2.

Effects of Gender of the Video Game Character on Implicit Gender-Violence Stereotyping (Gender IAT Score) and Aggressive Behavior (Hot Sauce Weight)

		Violent Male Character		Violent Female Character	
	Participants	*M*	*SD*	*M*	*SD*
Gender IAT Score	All	-0.11_a	0.43	-0.32_b	0.62
	Male	-0.19_a	0.57	-0.64_b	0.85
	Female	-0.07_a	0.34	-0.15_a	0.37
Aggressive Behavior (Log Weight of Hot Sauce)	All	-3.35_a	1.44	-4.13_b	1.32
	Male	-2.73_a	1.22	-3.80_b	1.31
	Female	-3.68_a	1.45	-4.29_b	1.29
Aggressive Behavior (Raw Weight of Hot Sauce)	All	0.07_a	0.08	0.03_b	0.05
	Male	0.11_a	0.08	0.05_b	0.07
	Female	0.05_a	0.07	0.02_b	0.02

Note. Numbers represent logarithmically transformed values, except for the aggressive behavior variable (raw hot sauce weight in grams) displayed in the last set of row. Within a row, means that do not share subscripts differ by $p < .05$.

Table 3.

Means, SD, and Intercorrelations of Racial Priming, Implicit Race-Violence Stereotyping, and Aggressive Behavior (Hot Sauce Weight)

	Mean	*SD*	1	2	3
1. Experimental condition (0 = violent White character, 1 = violent Black character)			1		
2. Implicit Race-Violence Stereotyping (Race-Weapons IAT score)	0.34	0.66	0.15*	1	
3. Aggressive behavior (Hot sauce weight)	3.75	1.37	0.27**	0.14*	1

Note. N = 140. Numbers represent logarithmically transformed values. * denotes correlation significant at .05 level. **denotes correlation significant at .001 level (one-tailed)

Table 4.

Effects of Race of the Video Game Character on Implicit Race-Violence Stereotyping (Race-Weapons IAT) and Aggressive Behavior (Hot Sauce Weight)

		Violent Black Character		Violent White Character	
	Participants	*M*	*SD*	*M*	*SD*
Race-Weapons IAT	All	-0.24_a	0.68	-0.44_b	0.63
	Male	0.06_a	0.55	-0.43_b	0.46
	Female	-0.22_a	0.67	-0.44_a	0.72
Aggressive Behavior (Log Weight of Hot Sauce)	All	-3.38_a	1.30	-4.13_b	1.34
	Male	-3.00_a	1.49	-4.17_b	1.47
	Female	-3.54_a	1.01	-4.10_b	1.27
Aggressive Behavior (Raw Weight of Hot Sauce)	All	0.06_a	0.07	0.03_b	0.03
	Male	0.09_a	0.08	0.03_b	0.04
	Female	0.04_a	0.05	0.02_b	0.02

Note. Numbers represent logarithmically transformed values, except for the aggressive behavior variable (raw hot sauce weight in grams) displayed in the last set of row. Within a row, means that do not share subscripts differ by $p < .05$.

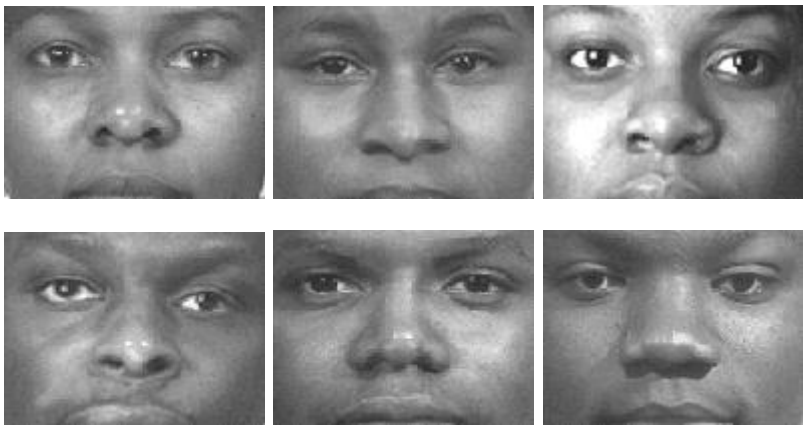
Appendix A

Gender-Violence IAT Category Items

Female Names	Elizabeth, Mary, Emily, Sarah, Jessica, Ashley, Rachel, Jennifer
Male Names	James, Michael, Christopher, Brandon, Andrew, Nicholas, David, Joseph
Violence-Implying Attributes	violent, destructive, belligerent, cruel, hostile, fighting, attacking, combative
Non-Violence Implying Attributes	nonviolent, peaceful, yielding, compliant, gentle, calm, amicable, nourishing

Appendix B

Race-Weapons IAT Stimuli Materials

Black Faces	
White Faces	
Images of Weapons	

			
Images of Neutral Objects			
			

Appendix C

SPSS Syntax for Computing the Latency Mean Difference scores

This syntax produces the mean difference for practice blocks (blocks 11 and 15) and test blocks (blocks 13 and 17) and reverses this score if indicated by change variable (so all scores will be in the same direction). Then, the syntax computes D score for practice and test blocks and an overall D score which is the mean of the D score for test and practice blocks. A higher mean difference or D score indicates a larger degree of gender-violence bias.

```
COMPUTE practiceblockmeandiff=latencymean11-latencymean15.
COMPUTE testblockmeandiff=latencymean13-latencymean17.
DO IF change=1.
COMPUTE practiceblockmeandiff=-practiceblockmeandiff.
COMPUTE testblockmeandiff=-testblockmeandiff.
END IF.
COMPUTE practiceblockDscore=practiceblockmeandiff/practiceblocksd.
COMPUTE testblockDscore=testblockmeandiff/testblocksd.
COMPUTE overallDscore=mean(practiceblockDscore, testblockDscore).
EXECUTE.
```

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