The influence of violent video game enjoyment on hostile attributions

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ABSTRACT

Although catharsis theory as applied to violent media has been repeatedly refuted in the literature, scholars have recently proposed methods by which a cognitive form of catharsis might occur for people who utilize games to manage negative affect. Drawing on these ideas, the current study tests how video games are used to manage feelings of frustration and boost one's sense of competency. It also explores how these emotional processes influence game enjoyment and hostile attribution bias (HAB). We frustrated half of 82 participants prior to randomizing them to play a violent or nonviolent game. Our results showed that frustrated participants were motivated to progress farther in a video game. This in-game performance decreased their feelings of frustration, boosted their sense of competency, and increased their enjoyment of the game. However, for those who played a violent game, this enjoyment predicted hostile attributions: high enjoyment of violence increased HAB, while low enjoyment of violence decreased HAB. These findings have implications for how video games are used to manage negative feelings.

1. Introduction: catharsis theory and violent video games

Catharsis theory, or the idea that people can rid negative emotions through vicarious experience, has existed for centuries. In the realm of media effects research, scholars have used the theory to support the notion that playing violent video games can help people purge real-world feelings of anger and frustration. Research, however, has generally failed to support these ideas (e.g., Bushman, Baumeister, & Stack, 1999). Meta-analyses of studies on violent video games suggest that exposure to such content leads to both short- and long-term increases in aggressive thoughts, feelings, and behaviors (Anderson et al., 2010), albeit with small effect sizes.

Despite such evidence, the processes by which exposure leads to changes in real-world behavior is often conditional on a variety of individual-level factors (Slater, Henry, Swaim, & Cardador, 2004), and researchers continue to call into question the practical meaning of small effects (Ferguson & Kilburn, 2009). Across studies, the negative impact of violent games are never seen across all players, and some research suggests the exposure to violent content might actually help certain subsets of people deal with feelings of depression and hostility (Ferguson & Rueda, 2010).

Building on this line of reasoning, Denzler, Hafner, and Forster (2011) recently proposed a goal-oriented cognitive process in which players who intend to reduce aggressive cognition by playing violent video games might be successful in doing so, especially if they tend to physically vent their feelings of anger in daily life.

To date, current work in this area has focused solely on decreases in aggressive cognition. No attempts have been made to examine how short-term alleviation of aggressive cognition might relate to other aggressive outcomes. Given research demonstrating that people who repair their negative moods by aggressing are typically motivated to continue aggressing in the future (Bresin & Gordon, 2013), players who use virtual aggression to deal with aggressive thoughts might reinforce the notion that violence serves a positive and important role in emotion management. In turn, this reinforcement might promote aggression.

The current study seeks to examine the possibilities of short-term catharsis and its potential to reinforce positive feelings about aggression. In doing so, we attempt to replicate the findings of Denzler et al.'s (2011) violent video game experiment in which they tested and supported a cognitive theory of catharsis. However, we seek to build on this study by grounding our work in observational learning theory (Bandura, 1978) and self-determination theory (Deci & Ryan, 2000). We also include more precise measures of emotional shifts before and after game play, as well as measurements of hostile attribution bias. This refined analysis informs our knowledge about how games are

utilized for emotional restoration, as well as the implications such usage has for aggressive outcomes.

1.1. Aggressive cognition, goals, and catharsis

Cognitive neoassociation theory (Berkowitz, 1984) posits that aggressive thoughts and scripts are stored in memory and linked together via associative pathways. When these pathways are activated by some stimulus, the likelihood that a person will translate those thoughts into aggressive action increases (Berkowitz, 1984, 1986; Bushman, 1998). Research has demonstrated that violent media can activate these associative networks to make aggressive thoughts more accessible in the short term (Anderson & Dill, 2000; Anderson et al., 2010; Bushman, 1998). Violent media can also construct and strengthen these pathways to make aggressive thoughts "chronically accessible" over the long term (Anderson et al., 2010; Bushman, 1998). This increased accessibility can lead to a range of aggressive behaviors as well as the cultivation of a more aggressive personality over time (Sedikides & Skowronski, 1990).

Some researchers argue that these aggressive outcomes are worsened if virtual violence is compounded with some form of negative affect, like frustration (Williams, 2009). Presumably, this occurs because negative emotions promote aggressive thoughts independently of the thoughts brought on by violent content. Taken together, these sources separately boost the accessibility of aggressive cognition and increase the likelihood of aggressive behavior.

To test this, Williams (2009) had participants play violent or nonviolent video games that were either fairly easy or highly frustrating. He found that both violence and frustration independently led to increases in self-reported hostile emotions after gameplay. Indeed, the most hostile participants were those who were frustrated *and* exposed to violent content. Although cognitions were not directly measured in this study, cognitive neoassociation theory would predict that these boosts in hostility stemmed from "double-dosing" both violence and frustration: both experiences made aggressive thoughts more accessible, which then translated to increased hostility. Considering these results, we propose:

Hypothesis 1a. There will be an interaction between feelings of frustration and violence exposure, such that frustrated players exposed to violent video game content will demonstrate the largest increase in aggressive cognitions after gameplay (see Fig. 1.1).

Williams' (2009) study, however, looked only at the experience of negative emotions *during* gameplay—he did not explore how games might be used to manage negative emotions existing prior to the gaming experience. This is an important distinction, given survey research suggesting that players often seek out violent

Fig. 1.1. Conceptual models of hypotheses. H1a and H1b: The moderating impact of game and anger-out scores on aggressive cognition. *Note.* Among frustrated players, exposure to a violent game will boost aggressive cognition (H1a). However, among those frustrated players with high anger-out tendencies, aggressive cognition will be reduced (H1b).

games to manage pre-existing negative feelings, like frustration (Deci & Ryan, 2000; Ferguson & Olson, 2013).

Denzler and Forster (2012) attempt to tackle this question, arguing that *goals* are important to consider when investigating the impacts of media use on aggressive behaviors. They posit that when people are motivated to achieve a goal, goal-related constructs are activated in memory. After attaining that goal, this increased accessibility of goal-related thoughts decreases.

This process, they argue, occurs for any type of goal. For instance, Van Koningsbruggen, Stroebe, and Aarts (2011) investigated the extent to which they could influence participants' perceptions of food by activating differential goals regarding dieting. They primed participants with (1) dieting goals, (2) enjoyment goals, or (3) no prime. Participants classified as "successful dieters" who were primed with dieting goals perceived the size of a healthy food (i.e., an apple) as larger than participants primed with enjoyment goals or who received no prime. The authors argue that these differential perceptions derive from the activation of different goal-related constructs: those primed with dieting goals activated thoughts related to achieving those goals (e.g., healthy food is good), which influenced their perceptions to motivate achievement (e.g., apples are a hearty meal). This altered perception would, presumably, lead to the behavior of healthier eating. According to the theory, once such behaviors were enacted, cognitions related to these altered perceptions would deactivate.

How might goals impact the use of violent video games as a means to manage negative affect? Denzler et al. (2011) argue that, for some people, the experience of negative emotions naturally compels them toward the goal of expressing those emotions. This need for expression is most relevant for "anger-out" people, or people who regularly use physical means (e.g., slamming doors) to deal with negative feelings. Accordingly, research has found that people with high anger-out tendencies are more likely to endorse the belief that venting anger has cathartic (i.e., alleviating) effects (Bushman, Baumeister, & Phillips, 2001).

Considering this tendency, Denzler et al. (2011) argue that choosing to play violent video games in daily life is generally a motivated behavior, and one such motivation stems from the belief that violent video games can serve as a means to achieve the goal of expressing negative emotions. They posit: (1) people who experience negative emotions show an increase in aggressive cognitions, (2) for anger-out people, these cognitions are inherently goal-related (i.e., tied with the need to express these emotions), (3) violent video games are perceived as a tool for expression, and (4) playing violent video games can reduce aggressive cognition (and, relatedly, the need to aggress) for anger-out people by fulfilling their emotional goals.

They tested this proposition by manipulating participants' initial accessibility of aggressive cognitions by giving them five minutes to write about a time they were angry with someone else. Afterward, participants played a violent first-person shooter computer game for four minutes. They also measured participants' anger-out tendencies. The accessibility of participants' aggressive cognition was measured with a lexical decision task (LDT) at two points in the study: (1) after the writing task but before gameplay, and (2) immediately after gameplay.

Their results supported their hypothesis: participants with high anger-out scores showed lower levels of aggressive cognition after gameplay compared to participants with low anger-out scores. This suggests that some people might be able to utilize violent media as a means to purge aggressive thoughts. Although their study dealt primarily with anger, their argument allows for other emotions that precede aggressive cognition, like frustration (see Denzler & Forster, 2012; Dollard, Doob, Miller, Mowrer, & Sears, 1939). These findings suggest the prediction made by 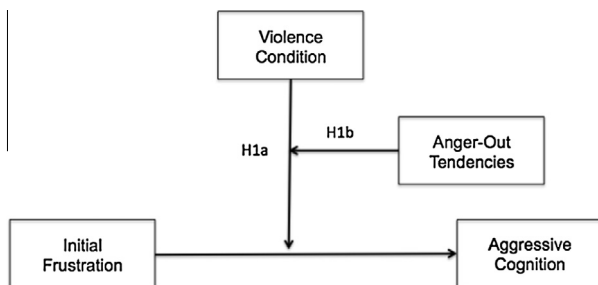H1a would be moderated by anger-out tendencies, such that: