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Do video games exert stronger effects on aggression than film? The role of media interactivity and identification on the association of violent content and aggressive outcomes

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ABSTRACT

This study investigated whether media interactivity would influence the short-term effects of violent content on audience aggression. The general aggression model, social cognitive theory, and character identification offered the theoretical framework. A random sample of 102 male college students were randomly assigned to one of three conditions: video game playing, recorded game-play watching, or movie watching. The results indicated that video game players (mediated enactive experience) experienced greater increases in aggressive affect, aggressive cognition, and physiological arousal than participants who watched recorded game play or comparable movie scenes (mediated observational experience). The study indicated that media interactivity in video game exacerbated the violent effect on short-term, aggressive responses. Character identification did not mediate the effect of media interactivity on aggression. Future studies should incorporate more comprehensive measures of character identification to investigate inconsistent findings regarding media interactivity and identification.

1. Introduction

Over the past few decades, research has shown a positive association between media violence and the audience's aggression and violent behavior (Anderson et al., 2010; Bandura, Ross, & Ross, 1961). More recently, there has been a shift in attention from a focus on violence in TV and film to that in video games (Anderson, Carnagey, Flanagan, Benjamin, Eubanks, & Valentine, 2004; Anderson & Dill, 2000). Based on the general aggression model (GAM), exposure to video game violence has been found to increase players' short-term physiological arousal, aggressive thoughts, aggressive affect, and aggressive behavior and long-term aggression (Anderson & Bushman, 2002; Bushman & Anderson, 2002). With the rapid growth in popularity of video games, researchers have started to question whether the relative magnitudes of violent effects vary between video games and TV (Dill & Dill, 1998; Dominick, 1984).

There are two lines of argument regarding the comparative magnitudes of violent effects stemming from video games and TV. Arguments that support the position that violent video games may have weaker effects on aggression than does TV emphasize the unrealistic graphics, abstract violence, and non-human characters of games. Researchers have argued that the realism of depicted violence affects the audience's imitation and aggression (Potter, 1999). A meta-analysis (Sherry, 2001) showed a positive association between video game violence and aggression, but the relationship was weaker than what was found in TV violence. On the other hand, arguments that suggest violent video games may have greater effects on players' aggression than TV emphasize media interactivity and behavior rehearsal in games. A longitudinal report on risk factors for aggressive behavior showed that the overall effect size of video game violence was .30 compared to .17 for other media violence (Anderson, Gentile, & Buckley, 2007). Moreover, researchers argued that violent video games allow players to identify themselves with characters, which increases imitation of aggressive behaviors (Dill & Dill, 1998; Gentile & Anderson, 2003).

Whether media interactivity would intensify the violence-aggression relationship is important to our society because the findings help to make sense of such effects, and understanding the underlying mechanism provides further insights for educators and policy makers to set guidelines for violence prevention and violence literacy education. However, very little prior research has directly addressed the issue of media interactivity with regard to violent effects (Gentile & Anderson, 2003). What is the difference between interactive media, such as video games, and non-interactive media, such as TV and film? While researchers (Dill & Dill, 1998; Klimmt, Hefner, & Vorderer, 2009) usually distinguish these two based on "interactivity," this is an ambiguous concept

Abbreviations: GAM, general aggression model; SCT, social cognitive theory.

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that is currently mentioned more implicitly (McMillan, 2002). The mechanism and theoretical distinction between video games and TV/film have not been clarified. This study employed the GAM and social cognitive theory (SCT) to continue to explore this issue. This study tested the effects of interactivity on aggressive outcomes and character identification as the mediator between the relationship of interactivity and aggressive outcomes. In addition, prior studies have been confounded by uncontrolled, manifest differences in content between modalities, including the amount of violence displayed. This study kept violent content across media constant to compare the effects of video games and corresponding recorded game play and movie sections.

2. Theoretical background

2.1. Arguments that violent video games may have weaker effects than film or TV

Many arguments that suggest that video game violence may have weaker effects on players' aggression than television violence only focus on the technological perspective. The poor graphic quality of video games reduces the realism of video game violence, especially when compared to television (Gentile & Anderson, 2003). Audiences, however, have a higher likelihood to be aggressive when violence is portrayed more realistically, and researchers argue that video games with less realistic depictions of violence may have weaker effects on aggression than does television (Potter, 1999). Second, another argument suggests that violence in video games is more abstract and harder to detect than violence in television (Sherry, 2001; Silvern & Williamson, 1987). Still another argument states that players in some violent games fight with non-human characters, such as animals, zombies, or spaceships.

However, recent research suggests that issues regarding technological advancement in video games might not actually be the concern (Gentile & Anderson, 2003). Newer video games, on the other hand, have better graphic quality than before, are more realistic, and contain more human-on-human violence, such as in the *Grand Theft Auto* series. Moreover, recent research shows that technological advancement, such as better graphic and audio quality in video games, did not moderate the violence-aggression relationship (Barlett, Rodeheffer, Baldassaro, Hinkin, & Harris, 2008b; Ivory & Kalyanaraman, 2007), ruling out the effects of technological advancement on aggression.

One issue that emerged from arguments suggesting that video game violence had weaker effects than television violence is the vagueness of the definition of violence in previous studies (e.g., abstract violence, non-human character in games, etc.). In this study, media violence is defined as "visual portrayals of acts of physical aggression by one human against another" (Huesmann & Taylor, 2006, p. 395). Violent behavior includes "serious forms of physical aggression that pose a significant risk of serious injury of victims" (Huesmann & Taylor, 2006, p. 395). Based on this definition, violence depicted in modern video games is not abstract, as what appears on television can also be illustrated in video games.

2.2. Arguments of violent video game may have greater effects than film or TV

Silvern and Williamson (1987) suggested that the media features of television programming, including action, pace, and visual change, also exist in video games. Researchers have also argued that interactivity is the fundamental difference between TV and games (Dill & Dill, 1998; Dominick, 1984; Gentile & Anderson, 2003). In this paper, interactivity "refers to situations where real-time feedback is collected from the receivers of a communications channel and is used by the source to continually modify the message as it is being delivered to the receiver" (Straubhaar & Larose, 1996, p. 12). As McMillan (2002) pointed out, this definition suggests that interactive content does not only allow users to control the options, but to also dynamically respond to users' actions. In video games, the game's programs (source) collect and respond to players' (receivers) decisions (real-time feedback), such as moving the game character to explore the game. What happens to game characters (messages) is continually modified by the game program based on players' active decisions. Players control a game character, and the game continually modifies the content. In contrast, when watching videos, the audience cannot control characters' actions. Based on this definition, video game playing is interactive, and video watching is not interactive.

The modes of video game playing and film/TV watching can be theorized based on SCT. In SCT (Bandura, 2007), enactive learning is a way for people to learn through direct experiences. In contrast, observational learning allows people to learn from other people's behavior and consequences. Specifically, symbolic modeling provided by mass media outlets, such as TV, allows people to expand their range of modeling experiences (Bandura, 2007). Peng (2008) further conceptualized video game playing as mediated enactive experiences, and video watching as mediated observational experiences. She suggested that video games provide a mediated environment for players to experience their behavior and its consequences safely. In Peng's study, a mediated enactive experience was defined as "a simulated direct experience in the mediated environment" (p. 650). In contrast, video watching is a passive observational experience in a mediated context, which was thus termed a "mediated observational experience."

2.3. Media interactivity and identification with media characters

Why would media interactivity exert greater influence on aggressive outcomes? To argue that video games have a greater effect on aggressive outcomes than TV, Dill and Dill (1998) extended the comparison into the active role-taking process, suggesting that violent video game players are also active aggressors. Through characters in the game, players actively make decisions and rehearse violent behaviors instead of passively observing them. When referring to role-taking in mediated environment, identification was used to argue that video games may have stronger effects on audience than video watching (Peng, Lee, & Heeter, 2010).

Identification was first defined as "the viewer, in fantasy, puts himself in the place of a character and momentarily feels that what is happening to that character is happening to himself" (Maccoby & Wilson, 1957, p. 1). In line with this definition, Cohen (2001) further suggested that character identification is a process audiences enact to lose self-awareness. They start to "assume the identity, goals, and perspectives of a character" (p. 261). This merging of audiences' identities with that of media characters' identities could be seen to be stronger in video games than in other media. GAM researchers argue that interactivity in video games allows players to more intuitively merge their identities with game characters' identities (Gentile & Anderson, 2003). More recently, Klimmt et al. (2009) conceptualized that video game identification is "a temporal shift of players' self-perception through adoption of valued properties of the game character" (p. 351). They argued that when watching films or reading books, audiences observe another distinctive social entity. In contrast, video game players temporarily adopt certain character properties and step into characters' shoes. The monadic merging of selves in video game thus is theorized as resulting in greater degree of identification with characters than the dyadic viewing of another character in observation. Therefore, "the degrees of freedom in the production of players' altered self-