Research Report

Video games and prosocial behavior: A study of the effects of non-violent, violent and ultra-violent gameplay

Morgan J. Tear *, Mark Nielsen

School of Psychology, The University of Queensland, Brisbane, QLD 4072, Australia

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ABSTRACT

Experimental evidence has pointed toward a negative effect of violent video games on social behavior. Given that the availability and presence of video games is pervasive, negative effects from playing them have potentially large implications for public policy. It is, therefore, important that violent video game effects are thoroughly and experimentally explored, with the current experiment focusing on prosocial behavior. 120 undergraduate volunteers (M_{age} = 19.01, 87.5% male) played an ultra-violent, violent, or non-violent video game and were then assessed on two distinct measures of prosocial behavior: how much they donated to a charity and how difficult they set a task for an ostensible participant. It was hypothesized that participants playing the ultra-violent games would show the least prosocial behavior and those playing the non-violent game would show the most. These hypotheses were not supported, with participants responding in similar ways, regardless of the type of game played. While null effects are difficult to interpret, samples of this nature (undergraduate volunteers, high male skew) may be problematic, and participants were possibly sensitive to the hypothesis at some level, this experiment adds to the growing body of evidence suggesting that violent video game effects are less clear than initially thought.

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1. Introduction

Contemporary Western culture is saturated by multiple forms of media and their concomitant impact on society has hence been a popular topic of research for several decades. As a result of this research endeavor, few would question that the effect of media is a profound one. At the societal level, media campaigns are used to influence behavior in a number of ways, from purchase decisions (Milner & Rosenstreich, 2013) to health behavior (Wakefield, Loken, & Hornik, 2010). Indeed media, in one form or another, can be used for benefit and can cause harm. It is the latter, and particularly the influence of media violence, which has dominated much of the experimental research on media effects (Anderson et al., 2003).

Concern with violent media arose from the mass media explosion of the 20th century (Bushman & Anderson, 2001), leading researchers to investigate the impact of violence in a variety of media forms, including tabletop games (Martin & Fine, 1991), pornography (Malamuth & Briere, 1986), and television (Eron, Huesmann, Lefkowitz, & Walder, 1972). With the advent of

personal computers and video game consoles and their subsequent proliferation, much of the violent media research turned its focus toward video games, with many early experiments (Anderson & Dill, 2000) and reviews (Dill & Dill, 1999; Griffiths, 1999) finding detrimental effects. For example, participants who played a violent video game were more likely to deliver noxious stimuli to a (fictitious) partner than a participant who played a non-violent video game (Anderson & Dill, 2000). Subsequent studies have shown that after playing violent video games, participants expect greater hostility from characters in a vignette (Bushman & Anderson, 2002), have greater access to aggressive cognitions (Anderson et al., 2004), and are quicker to associate their self-concept with aggression (Uhlmann & Swanson, 2004). Given consistent reports that violent video games increase anti-social behavior (aggression included) (although see Ferguson, 2013), it seems reasonable to expect that violent video games will decrease prosocial behavior, that is, behavior intended to help others (Gentile et al., 2009).

Unfortunately, the violent video game literature on prosocial behavior is limited and somewhat contradictory. Seminal work by Chambers and Ascione (1987) was among the first to demonstrate that violent video games can reduce prosocial behavior by showing that children who played a violent video game donated less to charity than those who played a prosocial game (although results for another behavioral helping measure were

* Corresponding author. Tel.: +61 7 3365 4466.
  E-mail address: m.tear@uq.edu.au (M.J. Tear).

not significant and, sadly, not reported). Subsequent experiments found that participants who played a violent game, compared to a non-violent game, were less likely to reward a confederate (Ballard & Lineberger, 1999), and less likely to cooperate (Sheese & Graziano, 2005). However, an experiment conducted by Greitemeyer and Osswald (2010) failed to reveal an expected detrimental effect of violent video games on prosocial behavior (indeed, the strength and direction of this relationship is empirically contested see Ferguson & Garza, 2011; Valadez & Ferguson, 2012). In Greitemeyer and Osswald's experiment, the researcher asked participants to play either a violent, non-violent, or prosocial video game, and then surreptitiously spilled a handful of pens on the ground, before observing whether the participants helped gather the spilt pens. Participants who had played the prosocial video game picked up more pens than those who played a violent or non-violent video game. Importantly, there was no difference in frequency of helping between the violent and non-violent games.

Tear and Nielsen (2013) explored potential reasons for this failure to demonstrate that violent games decrease prosocial behavior, compared to non-violent games. Adapting the pen-drop task used by Greitemeyer and Osswald (2010), Tear and Nielsen used contemporary and classic games, delayed and immediate test-phases, and short and long exposures in order to create optimal conditions for revealing a decrease in prosocial behavior following violent video game play. In none of their experiments, were Tear and Nielsen able to show that playing violent video games diminished prosocial behavior. While these findings, coupled with those of Greitemeyer and Osswald, suggest playing violent video games does not impact prosocial behavior, they are based on participants' responses to just one task (the pen-drop task). Since the notion that violent video games should decrease prosocial behavior seems intuitive, and persistent (Greitemeyer, 2011, p. 252; Greitemeyer & Osswald, 2010, p. 215), we sought to run an experiment using other measures of prosocial behavior and observe whether the expected video game effect would reveal itself.

Here, we used two established measures of prosocial behavior: (1) a charity donation task, used in several other domains, such as behavioral mimicry (van Baaren, Holland, Kawakami, & Knippenberg, 2004), social priming (Garcia, Weaver, Moskowitz, & Darley, 2002), and social preferences (Levitt & List, 2007); and (2) the tangram task, used in past violent video game research (Gentile et al., 2009; Saleem, Anderson, & Gentile, 2012). To militate against any potential findings being attributable to the idiosyncratic influence of one game it is also important that research does not rely on only one exemplar per game category. Moreover, if violent video games impact on prosocial behavior it would be reasonable to expect that stronger effects would be found with more violent games. We thus employed two distinct violent video game conditions: One in which participants played games rated as suitable for and legally saleable only to those aged 15 years and older and more graphic versions of the same games rated as suitable for and legally saleable only to those aged 18 years or older. Assuming an incremental effect of violence, that is the more violent the game the stronger the effect (Barlett, Harris, & Bruey, 2008; Farrar, Krcmar, & Nowak, 2006), it was hypothesized that participants who played the ultra-violent games would donate least to charity, and assign the most difficult tangrams, while those who played a non-violent game would donate most to charity, and assign the least difficult tangrams.

2. Materials and methods

2.1. Participants

Participants were 120 undergraduate students from a first-year introductory psychology course at a large metropolitan university (87.5% male, M_{age} = 19.01, SD_{age} = 2.72). Most participants self-reported as Caucasian (67.5%), with a minority reporting Asian (25%) or other (7.5%). In past experiments we found that participants with no video game experience often struggled to grasp basic mechanics essential for playing the games. To overcome this problem we recruited participants who played games at least once a week, which may explain the skew toward male participants. In this context, it is notable that Gentile et al. (2014) suggest it remains unclear what role gender has in violent video game effects. This research was given ethical clearance by the university's ethics board (ethics clearance number: 2011000541).

2.2. Video game stimuli

Two games were chosen for each category in order to avoid the possibility of an effect being tied to the idiosyncrasies of one particular game. For the violent games (violent and ultra-violent) we elected to use games from the same franchise in order to evaluate the relative impact of increased violence while keeping other factors (e.g. game mechanics, pace, characterizations) relatively constant. In terms of varying amount of violence, video game classification provides a useful, although imperfect, distinction between levels of violence. To this end, we chose a violent game franchise (e.g. Mortal Kombat) and picked exemplars from that franchise (e.g. Mortal Kombat vs. DC Universe, rated as suitable for those over 15 years, and Mortal Kombat: Komplete Edition, restricted to adults). Descriptions of the games we used follow.

2.2.1. Non-violent games (Portal 2 and Modnation Racers)

Portal 2 is a non-violent puzzle game, where players use a gun that shoots entry and exit points of a portal, allowing them to access areas they would not normally be able to. Thus, as is common in violent games, the player uses a gun-shaped tool to interact with the virtual world. Except, instead of firing bullets, the gun in Portal 2 shoots portals. Modnation Racers is a non-violent racing game, where the player competes against several other computer controlled characters in a race around a circuit. Players can earn boosts by performing tricks while racing. They can also interfere with their opponents' race by picking up items (e.g. a green beam that slows their nearest opponent).

2.2.2. Violent games (God of War 3, Mortal Kombat vs. DC Universe)

God of War 3 is a violent combat game set in the mythology of ancient Greece, where the player uses a variety of hand-weapons (blades, knives, mauls) to slay large quantities of non-human enemies. Participants played the combat arena mode, which pits him or her against a selected enemy type. Players must utilize a variety of weapons and techniques to slay their enemies and avoid death. Mortal Kombat vs. DC Universe is a fighting game where players select a fighter and engage in a series of one-to-one matches against computer-controlled opponents. Players win these fights by using punches, kicks, and special moves involving projectiles to reduce their opponents' 'life' to nil. Mortal Kombat received much criticism in the early 90s for the inclusion of 'fatalities', hyper-violent finishing moves than often involve the dismemberment of the loser. It is important to note here that the fatalities in Mortal Kombat vs. DC Universe were a minor component of the participants' full experience. That is, fatalities were rarely executed by participants and were only ever experienced when the participant lost a round. Further, the extremity of fatalities in the version of Mortal Kombat we used were significantly reduced (in order to achieve a M 15+ rating).