Computers in Human Behavior 50 (2015) 399–410

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Digital poison? Three studies examining the influence of violent video games on youth

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ARTICLE INFO

Article history:

Keywords:
Video games
Aggression
Violence
Mental health

ABSTRACT

The role of violent video games in the development of aggression and mental health issues in youth continues to be controversial in the scholarly community and general public. Compared to college students, few studies have directly examined the potential impact of violent video games on youth and current evidence is mixed. The current article attempts to address this with three studies examining violent game play in youth aged 12–18. In Study 1, youth were randomized to play closely matched action games with either violent or non-violent content. Youth were given the opportunity to act aggressively using an ice water task. Study 2 was a conceptual replication of Study 1, with slower narrative games rather than action games. Study 3 examined the issue in a correlational study of youth, contrasting exposure to violent video games in youth's personal lives to their exposure to violence in controversial books while controlling for other variables including family, peer and personality variables. None of the studies provided evidence for concerns linking video game violence to aggressive behaviors or reduced empathy in youth.

1. Introduction

Video games (broadly defined here as games played through an electronic format such as computer, console or digital phone) as a form of immersive media have long been scrutinized for their potential influence on possible violent or aggressive behaviors in youth. Such scrutiny is based on the concern that children, through playing violent videogames (videogames that involve the player causing physical harm to another character as a feature of gameplay), learn violent or aggressive behavior and that this effect has reached a level of public health concern (see Hall, Day, & Hall, 2011 for review). Concern exists also regarding the potentially desensitizing nature of violent games, in which players become accustomed to and more accepting of violence and aggression and are less bothered by violence or aggression in real life or are less empathic. However, these concerns have become the source of considerable and often acrimonious debate within the scholarly community, among politicians and in the general public. A number of research studies have been conducted in this area but their results have been in conflict. So there continues to be room for additional studies examining the relationship between violent video games and youth.

1.1. Who is concerned about video game violence and why?

Grimes, Anderson, and Bergen (2008) use the term 'causationalists' to describe those who perceive violent video games as a direct cause of negative effects (psychosocial or otherwise) in game players. This category of researchers argues that laboratory and survey-based studies have shown players of violent video games to think, feel and behave more aggressively (Anderson et al., 2010). By contrast, optimists or skeptics hold the view that the research data remains contested and that links between video game violence and youth aggression or violence remain weak or limited by methodological issues (e.g. Adachi & Willoughby, 2010; Kutner & Olson, 2008). Although referring here to scholars, similar divides can be seen among politicians and the general public.

It is likely difficult to underestimate the degree to which concerns about video game violence are exacerbated by school shootings and other instances of mass violence perpetrated by adolescents, teens, and young adults. The social narrative linking mass shootings to video game violence likely crystalized by 1999 when it was revealed that the two shooters of the Columbine High School massacre were both avid players of the sci-fi/horror

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http://dx.doi.org/10.1016/j.chb.2015.04.021
0747-5632/

first-person shooter game *Doom* (Markey & Markey, 2010). Thus, it is not uncommon when violent acts are perpetrated by younger males to see media discussion about violent video games. However, when shooters are older or female, the issue is often ignored. The recent 2012 Sandy Hook shooting perpetrated by a 20-year-old male exemplifies this social phenomenon. Despite that the investigation was ongoing and little detail about the shooter official emerged, many politicians specifically targeted violent video games as a potential cause (e.g. Boleik, 2012). Similarly, some news reports highlighted "leaked" information suggesting that the perpetrator was a frequent player of violent games (e.g. Bates & Pow, 2013). However, the official investigation report (State's Attorney for the Judicial District of Dansbury, 2013) did not substantiate these claims. Although the official report noted that both violent and non-violent games were found in the shooter's home, the report noted that the perpetrator spent most of his time playing non-violent games such as *Super Mario Brothers* and *Dance, Dance Revolution.* This disconnect between the social narrative and investigative reports was seen also in the 2007 Virginia Tech Shooting in which the shooter was reported in the news to be an avid fan of violent games, but ultimately was found in the official investigation not to have played violent games at all (Virginia Tech Review Panel, 2007). In a recent review of mass shootings criminologists Fox and DeLateur (2014) specifically refer to linking such violent acts to video games a "myth."

Such tragic events have sensationalized the video game debate, to the point that they are commonly referenced even in scholarly articles that do not directly pertain to mass shootings (e.g. Anderson, 2004; Anderson & Dill, 2000; Markey & Markey, 2010). This is not to be unexpected, given the high profile and emotional valence of the violent video game debate. However, even if links between violent video games and mass shootings may have more to do with social narratives than data and science, it is not unreasonable to hypothesize links between violent video games and other forms of aggression in youth.

1.2. Experimental research on video game violence

To date, the majority of research on video game violence has considered the issue in the context of college student samples. This body of research has often proven controversial due to common problems related to difficulty matching violent and non-violent game conditions to ensure internal validity (Adachi & Willoughby, 2010), lack of standardization and external validity of aggression measures used (Elson, Mohseni, Breuer, Scharkow, & Quandt, in press; Mitchell, 2012; Ritter & Eslea, 2005; although see Anderson & Bushman, 1997; Carlson, Marcus-Newhall, & Miller, 1989 for a more sanguine view) and difficulty in relating to real-life violence issues of interest to policy makers (Brown v EMA, 2011). In this section we briefly review typical examples of this research.

Most experimental studies of video game violence randomize participants to play either violent or non-violent games, and assess participants on some measure of aggressive thoughts, feelings or behaviors. For example, one study by Anderson and Dill in 2000 tested the effects of playing videogames in the lab on aggression. The results suggested that there was a causal relationship between violent videogames and laboratory aggression as measured by the commonly employed noise blast test (the Taylor Competitive Reaction Time Test or TCRTT). However, for aggressive behavior, significance was achieved for only one of four outcomes. A study of a similar design (Ferguson et al., 2008) also tested the relationship between playing videogames in a lab and aggression using the TCRTT. Results of this experiment suggested that there was no relation between violent videogames and short term aggression.

As noted, however, a common issue for much of this earlier work on video game violence was difficulty in identifying carefully matched control conditions of non-violent video games that were similar to the violent games on qualities other than violent content. Scholars have identified as important several variables ranging from difficulty of the game, pace of the action, the competitiveness, and how complex the control for the game may be (Adachi & Willoughby, 2010; Przybylski, Rigby, & Ryan, 2010; Valadez & Ferguson, 2012). To address this issue Adachi and Willoughby (2011) designed two experiments using video games on the Xbox 360. In the first experiment they carefully matched two video games using pilot testing on criteria other than violent content. In the second experiment, they manipulated both violent content and competitiveness. The aggressive behavior using a hot sauce test was assessed for participants in their studies. Their results suggested that the competitiveness of a video game, but not its violent content, was predictive of aggressive behavior.

Further research has continued to vary on whether violent video games do (Ivory & Kaestle, in press; Panee & Ballard, 2002; Williams, 2013) and do not (Ballard, Visser, & Jocoy, 2012; Charles, Baker, Hartman, Easton, & Kretzberger, 2013; Elson, Breuer, Van Looy, Kneer; Quandt & Kroger, 2013) provide evidence for the belief that violent games contribute to aggression in the laboratory. As such, it is difficult to make definitive statements about this research and interpretation of this research and what it means on a larger scale has often been acrimonious. A relatively smaller number of studies, both correlational and experimental, have more specifically examined the issue of video game violence in youth. It is to this group of studies that we now turn.

1.3. Video game violence and aggression among youth

A relatively smaller pool of studies, perhaps comprising several dozen, has examined the impact of video game violence exposure on aggression in youth. Several of these are experimental, although correlational and longitudinal studies are actually more commonplace for younger samples. As such we begin by considering the correlational work before discussing the few existing experiments.

A 2012 longitudinal study is among the best studies examining whether violent video games increase aggression (Willoughby, Adachi, & Good, 2012). The study included almost 1500 Canadian students followed from grade 9 through 12. After the study controlled for a number of possibly confounding variables, they found a small correlation ($r = .07$) between violent video games and later aggression across the four years. This result suggests that some predictive relationship may exist, but that it is quite small. The authors also noted that it may be difficult to separate out the violent content of video games from their competitiveness. A follow up analysis by the same authors suggested that competitiveness, more than violent content, may be the critical factor behind even that small effect (Adachi & Willoughby, 2013a).

Other longitudinal studies have been inconsistent regarding whether video game violence has a small predictive relationship with later aggression (e.g. Hopf, Huber, & Weiß, 2008; Möller & Krahé, 2009) or no predictive relationship at all (e.g. Ferguson, San Miguel, Garza, & Jerabeck, 2012; von Salisch, Vogelgesang, Kristen, & Oppl, 2011) or potentially an inverse relationship (Shibuya, Sakamoto, Ihori, & Yukawa, 2008). These studies have varied in the sophistication of the use of control variables, the quality of aggression measures, and the degree to which issues such as single responder bias (Baumrind, Larzelere, & Cowan, 2002) may have influence results.

The question of whether the interactivity of video games makes them a more powerful influence on youth has also been an area of contention. Some scholars (e.g. Anderson & Dill, 2000) have raised his as a potential, although early meta-analyses (Sherry, 2007) suggested that the impact of video games on aggression has been, if anything, less than for television. A 2009 meta-analysis directly