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## Call of (civic) duty: Action games and civic behavior in a large sample of youth

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## ABSTRACT

The positive and negative influences of violent/action games, henceforth called "action games", remains controversial in the scholarly literature. Although debate continues whether action games influence aggressive behavior, little research has examined the influence of action games on civic engagement. The current study addresses this gap by examining the correlation between exposure to action games on civic engagement and on-line prosocial behavior in a sample of 873 teenagers. Results indicated that girls as well as teens who had parents who were more technologically savvy tended to engage in more civic behaviors. Exposure to action games predicted more prosocial behavior on-line, but did not predict civic engagement either positively or negatively. However, exposure to action games and parental involvement interacted to promote youth civic engagement. Action-game-playing-youth whose parents were involved in game play and supervision were most civically involved, compared to youth who did not play action games, or whose parents were less involved. These results indicated little support for the belief that exposure to violence in video games decreases prosocial behavior and/or civic engagement. Conversely some support was found for the possibility that playing action games is associated with small increased prosocial behavior and civic engagement in the real world, possibly due to the team-oriented multiplayer options in many of these games.

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## 1. Introduction

The issue of violent content in video games remains controversial in the scholarly literature. In 2005, the American Psychological Association (APA) released a committee statement concluding that exposure to violent or action video games (henceforth referred to as "action games")<sup>1</sup> are linked with aggressive behavior. However, other scholars have expressed skepticism with this view and concern that the APA statement exaggerates the strength, consistency and validity of much of the extant work in this field. For example, scholars have expressed concern with: (1) the validity of the measures used in many of the studies (Ferguson, 2010; Freedman, 2002; Ritter & Eslea, 2005); (2) failure to control adequately for "third" variables (Kutner & Olson, 2008; Savage & Yancey, 2008); and (3) misleading statements falsely equating the effect size of such research with

medical effect sizes (Block & Crain, 2007; Ferguson, 2009). Empirical evidence for harmful action game effects has been mixed (see Ferguson, 2010; Kutner & Olson, 2008 for comprehensive reviews). It is likely that debate on the deleterious effects of action games on aggression will continue into the foreseeable future. Relatively less often considered is the potential impact of action games on civic engagement or participation in helping others and building community. The current study seeks to fill this gap by examining the influence of action games on civic engagement and on-line prosocial behavior in a large sample of youth.

## 1.1. Action games and civic engagement: Whence forth art thou correlation?

There is little question that the past few decades have seen an explosion in the popularity of video games and a concurrent increase in their sophistication and graphicness. Several incidents of mass-school-shootings by teenage boys, who were avid gamers, led to claims by some, that violent content in action games may be creating a general meanness among youth, which could spill over into violence (e.g., Thompson, 2007). Nonetheless, since the early 1990s, violent behaviors among youth have decreased precipitously, as shown in Fig. 1 (Childstats.gov., 2010), rather than risen, largely contradicting fears of a mass wave of juvenile super-predators (Muschert, 2007).

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<sup>1</sup> The terms "violent video game" and "action game" are both used in the scholarly literature, and often referring to the same kind of games. In our experience the term "violent video game" is typically used by scholars linking action games to negative outcomes, whereas "action games" is preferred when linking the same games to positive outcomes. Ultimately we argue the term "violent video game" has become polemicized and may inadvertently push the field in more ideological directions. As such we prefer the more neutral term "action game."

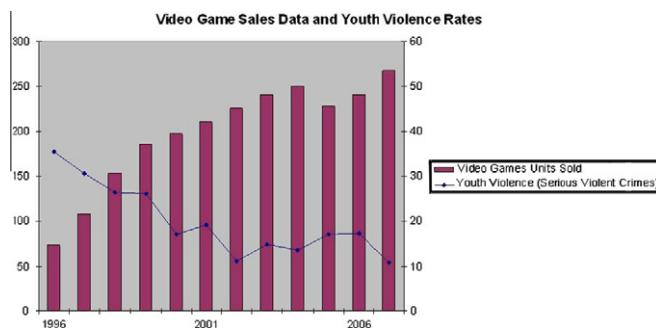


Fig. 1. Youth violence and video game sales data.

Data on civic engagement over the same period is less clear. Trends in youth-civic-engagement depend upon the type of civic behavior examined. For instance, Syversten, Wray-Lake, Flanagan, Bridgell, and Osgood (2008), found that youth participation in "conventional" civic activities (participation in government, writing to a public official, etc.) has decreased over time. However, participation in community service (activities which directly help others in the local community) has increased over time. From these results, we see that youth are increasingly active in helping others, but show decreased engagement with government and the political process. Not surprisingly, trust in government among youth is relatively low. A recent report by the Girl Scouts (2009), surveying approximately 3000 teen boys and girls, found that civic engagement, including participation in political processes, giving to charity and involvement in community service was up from 20 years previously. Although these studies do not specifically look at the impact of video games, they appear to make clear that in the "video game era" youth-civic-engagement has risen, possibly excluding involvement in government.

Relatively little research has examined the impact of video games on civic engagement. Perhaps, the best known such study is by Lenhart et al. (2008), at the Pew Internet and American Life Project. This survey of 1102 youth found that video game and internet use was very common among youth, and such activities tended to be highly social. Little evidence emerged to suggest that video games negatively influenced civic engagement. Nevertheless, the data analysis did not specifically examine action games; therefore, the potential remains that action games may have some influence, whether positive or negative, on civic engagement.

The discussion of the potential impact of action games on civic engagement has not yet seen any consensus. Writing recently, Bers (2010), suggested that many video games, including some action games, may increase civic engagement. Olson (2010) has similarly concluded that action game use is part of normal and healthy child social development, particularly for boys. Williams (2006) examined the civic behaviors of players of the massively multiplayer on-line game (MMO) *Asheron's Call 2*, which has some violent content, reporting mixed results. Although some forms of civic engagement improved, he also found that real-life social behaviors tended to erode over time. Yee (2006) found that social and civic motivations are significant for on-line games in particular, despite that many on-line MMO games contain violence. These results were later confirmed by Williams, Yee, and Caplan (2008), who found that social interaction and civic connection was one of several principal motivations for MMO use.

By contrast, advocates of the view that action games are harmful have sought to link violence in games with reduced prosocial and civic behavior. Unfortunately, one of the approaches commonly used is to compare the relative influence of "prosocial" video games and "violent" video games. Gentile et al. (2009) provide an example of the fraught nature of this approach. Gentile

and colleagues asked participants to list several of their favorite games and rate them on violence and prosocial content. The authors then calculated separate "prosocial game" and "violent game" variables, which they entered together in regression analyses. The authors noted that "Although prosocial and violent game exposure were highly correlated, most likely because of the way they were measured, multicollinearity did not unduly influence the regression coefficients (i.e., variance inflation factors were less than 10)" (p. 756). In fact, entering two highly correlated variables together in a regression equation is highly likely to produce spurious multicollinearity effects. Contrary to the authors' assurance that multicollinearity effects are negligible, it seems apparent that variance inflation factors (VIF), which are "less than 10", are likely near to that figure of 10 (the authors do not report the exact VIF figures, but one presumes they would have noted lower figures had they achieved them); VIF figures near 10 are actually highly indicative of multicollinearity. Indeed, although no precise VIF value is agreed upon for evidence of multicollinearity (Keith, 2006), it is the experience of these authors, that VIF values above three are worrisome indicators of multicollinearity; thus, the assurance that the VIF figures are "less than 10", is not much assurance at all. Furthermore, despite that the two variables are in fact highly correlated, they produced standardized regression coefficients that are both large ( $\beta$ s = above .40 for helping behavior and empathy) and in opposing directions. High VIF values and highly correlated variables, which produce opposing multivariate effects, are classic indicators of "bouncing beta" phenomenon... that is, spuriously high standardized regression coefficients produced by multicollinearity rather than true effects. Unfortunately, Gentile et al. (2009), appear not to have attended carefully to this possibility.

That Gentile et al. (2009) found results indicating that "prosocial" and "violent" game play is highly correlated, is not surprising. Indeed, many action games include both violent content and a prosocial focus. Many action games involve themes of helping others, rescuing hostages, saving princesses, defending one's home, etc. Further, many on-line action games involve team play in which groups of players must cooperate and work together toward a common goal. The "raids" in *World of Warcraft* would be such an example (Barnett & Coulson, 2010), as would team action in many first-person-shooter type games, such as the *Call of Duty* or the *Medal of Honor* series. Given the concerns about multicollinearity, attempting to include "prosocial" and "violent" game conditions together in multivariate analyses are likely to produce misleading results and should be avoided in the future.

## 1.2. The current study

From the literature described above, it remains clear that there is much research yet to be done regarding the influence of action games on civic engagement. Perhaps, the most comprehensive such study is Lenhart et al. (2008); as discussed above, although their data analysis strategy did not specifically examine action games, rather looked at video games more broadly. However, the data available in the Lenhart et al. (2008) survey do ask youth to report on their top three video games recently played. It is possible to get violence ratings on these games in order to get an overall estimate of violent content exposure and examine its influence on youth-civic-engagement. The current study uses data provided by the Pew Internet and American Life Project and data reported in Lenhart et al. (2008), for further analysis of action game effects.

### 1.2.1. Study aims

The purpose of the current study is to examine the relationship between exposure to violence in action games and youth involvement in civic behaviors both off-line and on-line. In particular, the goal of the current study is to examine this relationship when

other potential predictors, such as gender, age or parental involvement are controlled. Multivariate analyses of this nature are important when examining video game effects, as it is known that variables as simple as gender can inflate video game bivariate correlations (given that boys tend to play more video games and more video games with violent content than girls).

Given that the current analysis employs an existing dataset, the current analysis is probably best considered exploratory rather than theory driven. That is to say, variables included in the analysis were included due to their availability in the existing data set, rather than developed and included a priori based on a theoretical perspective. Nonetheless, given this is a relatively new research field, an exploratory analysis can be potentially illuminating.

## 2. Method

### 2.1. Participants

The Lenhart et al. (2008) database consists of 1102 youth between the ages of 12 and 17 ( $M = 14.6$ ,  $SD = 1.7$ ). The sample was almost equally divided among boys and girls (50.5–49.5%, respectively). Families were contacted through a random-digit dialing approach; thus, achieving a random nationally representative sample. A full discussion on the sample and sample recruitment is available in Lenhart et al. (2008). Full data on all included measures in the current analysis were available for 873 youth from this sample.

### 2.2. Measures

Several measures were construed from the items on the Lenhart et al. (2008) survey, based upon content domain and internal reliability. Items were Likert-scale in nature, except where noted below. The scales constructed included two parent-related variables to serve as control variables, as well as two civic related youth behavior outcome variables, and as the violent content exposure variable.

#### 2.2.1. Parent involvement (PI)

A scale of parental involvement in the youth's gaming behavior was constructed from four items. Examples of items on this scale asked parents how often they do certain actions such as, "Do you know which games your child is playing?" and "Do you play the games with him/her". Coefficient alpha for this scale was .56.

#### 2.2.2. Parental tech savvy (PTS)

A scale measuring the degree to which parents were comfortable with technology such as computers and cell phones was constructed from four items. Sample items include, "Do you use the internet, at least occasionally?" and "Do you have a cell phone?" This scale required all yes/no answers. Coefficient alpha for this scale was .74.

#### 2.2.3. Violence exposure in action games

In the current analysis, exposure to violent content was measured in a similar way to the approach used by Lenhart et al. (2008), examining the games teens play (as noted earlier, Lenhart et al. (2008), did not correlate violent content with civic engagement in their report). As stated earlier, teens were asked to report on the top three games they regularly played. We obtained an estimate of their violent content by using the Entertainment Software Ratings Board (ESRB) ratings for each game. Commonly in research, children are asked to rate the violent content of games they play; however, each child may have a different perception of what constitutes violence. Following are three pertinent advantages for

using the ESRB ratings: (1) the ratings are consistent across games, employing trained raters; (2) the rating system has been widely praised for accuracy by the Parents Teachers Association (PTA), the Federal Trade Commission and even anti-game violence "watchdog" groups, such as the National Institute of Media and Family; and (3) researchers have used the ESRB ratings reliably and validly to measure violence content in past research (Kutner & Olson, 2008; Olson et al., 2009). Similar to the approach used by Lenhart et al. (2008) in their descriptive analysis of games teens play, games were coded according to their rating (1 = EC, 2 = E, 3 = E10+, 4 = T, 5 = M, and 6 = AO). These ratings were summed and multiplied by the child's reported frequency of game play to comprise the exposure variable. In some cases child gave vague responses (e.g., "racing game", "the game with the aliens in it") or referred to a game that could not be located in the ESRB rating system. Since a violence exposure variable could not be reliably constructed from such responses, these cases were eliminated from the analysis. One hundred and twenty three cases were designed to have given at least one vague or difficult game to reliably rate and thus were dropped from the analyses.

#### 2.2.4. Youth civic engagement

A scale of youth-civic-engagement was formed using five items related to behavior (e.g., "I have volunteered in my community") and five items related to civic attitudes (e.g., "Being actively involved in national, state and local issues is my responsibility"). Coefficient alpha for the resultant ten-item scale was .66.

#### 2.2.5. On-line prosocial behavior

A scale of youth-prosocial-behavior, while on-line, was compiled from six items related to helping behavior on-line and engagement in community activities on-line. Examples include, "When you play computer or console games, how often do you help or guide other players?" and "When you play computer or console games, how often do you organize or manage game groups or guilds?" Coefficient alpha for this scale was .66.

### 2.3. Data analytic strategy

Primary data analysis consisted of multiple regression analyses. Age and gender were entered earliest in the regression model, followed by the parental control variables, followed by violence exposure in action games. Further, an interaction variable between parental involvement and violent game exposure was constructed, as it was thought that parental involvement might positively mediate any effects of violence exposure. To avoid multicollinearity problems that commonly accompany interaction terms in regression equations, the parental involvement and violence exposure variables were first centered. Then, they were multiplied to form the interaction term. Two separate multiple regressions were run, with civic engagement and prosocial on-line behavior as outcomes. Collinearity statistics were all acceptable, with VIF and tolerance statistics reported below for each regression.

## 3. Results

A table of bivariate correlations among predictor and outcome variables is presented as Table 1. Several correlations, while not part of our main analyses, bear noting. First, parental involvement with their children's gaming was less for older teens ( $r = -.27$ ) and for girls ( $r = -.12$ ). Second, parental involvement in children's gaming was actually related to a slight increased exposure to violence in games ( $r = .10$ ). This would appear to be the opposite of what anti-violence "watchdog" groups may hope for. However, this observation may fit well with previous observations that parents

**Table 1**

Intercorrelations between predictor and outcome variables.

Variable	1	2	3	4	5	6	7
1 Age of child	1.00	-.04	-.27*	.01	-.01	.09*	-.07
2 Female gender		1.00	-.12*	-.07	-.45*	.06	-.02
3 Parent involvement			1.00	.07	.10*	-.01	.07
4 Parental tech savvy				1.00	.04	.10*	-.02
5 Violence exposure in games					1.00	-.03	.08
6 Civic engagement						1.00	.20*
7 Prosocial behavior on-line							1.00

\*  $p \leq .01$ .

who are involved with their children's gaming experience, tend to become more comfortable with action games, even when the games contain violence (Kutner, Olson, Warner, & Hertzog, 2008). Ivory and Kalyanaraman (2009), similarly found that direct experience with specific action games tended to reduce concerns that those games would lead to increased aggression; therefore, parents who involve themselves in their children's gaming experiences, may find action games less worrisome. Finally, as has been observed previously (Ferguson, San Miguel, & Hartley, 2009; Kutner & Olson, 2008), girls tend to be exposed to less violence in video games than boys ( $r = -.45$ ). The strength of these gender effects highlights the importance of controlling for gender, among other variables, when examining relationships between video game violence and outcome variables. Over reliance on bivariate correlations is likely to exaggerate any effects, which may simply be due to gender differences. For instance, it is well understood that, as boys both play more action games and are more aggressive, bivariate correlations between game violence and outcomes may be spurious, due mainly to an underlying gender effect (Ferguson, 2010; Kutner & Olson, 2008).

The first multiple regression involved civic engagement as the outcome variable. Collinearity statistics were all acceptable, with VIF statistics all below 1.5 and tolerances above .70. Results are presented in Table 2. Civic engagement was significantly higher among girls ( $\beta = .08$ ), among older children ( $\beta = .08$ ) and among children whose parents are technologically savvy ( $\beta = .12$ ). Exposure to violence in games was not related to civic engagement ( $\beta = -.02$ ) although the interaction between parental involvement and violence exposure was significant ( $\beta = .07$ ). Teens whose parents were more involved in gaming and who also played more action games were more civically involved than their peers whose parents were not involved or who played fewer action games.

The second multiple regression involved prosocial on-line behaviors as the outcome variable. Given that the outcome variable is specifically related to on-line prosocial behavior, unlike the previous outcome, it was considered possible that violence exposure might be confounded with general video game use. In other words, action gamers may engage in more prosocial on-line behaviors simply because they were on-line more often. To control for this possibility, we included total time spent using video games

as a control variable. This elevated the collinearity diagnostics slightly, with the highest VIF at 2.2 and lowest tolerance at .45. These levels are still considered acceptable (Keith, 2006). Even so, to clearly eliminate the possibility of multicollinearity, the regression was rerun without the total time gaming variable. This did not substantially change the results. Results are presented in Table 3. Violence exposure in video games predicted prosocial behavior on-line ( $\beta = .16$ ), and did so even when the total time spent gaming ( $\beta = .11$ ) was controlled. This relationship is in a positive direction, suggesting that the use of action games is associated with greater prosocial behavior on-line. Older children were also less likely to behave prosocially on-line ( $\beta = -.08$ ).

#### 4. Discussion

Several important findings emanate from the current study. First, related to civic engagement, violence in action games was not found to correlate with civic engagement; however, the interaction between parental involvement and violence exposure was significant. Children who played more action games displayed greater involvement in civic engagement than their peers if their parents were involved in playing with them and supervising their game play. Taken together, this suggests that parental influences are most important in encouraging civic engagement; therefore, playing action games together may promote civic engagement. Related to prosocial on-line behavior, exposure to violence in action games was related to increased prosocial behavior even when total game time was controlled. It should be noted that the effect sizes of these relationships were very small, and causation cannot be asserted from the results of a correlational study. It is important not to overinterpret very small effect sizes of this nature. Nonetheless, these results lend support to optimistic views about the role of video games in youth civic and prosocial development (e.g., Bers, 2010; Olson, 2010; Simkins & Steinkuehler, 2008; Steinkuehler & Williams, 2006). Perhaps, more importantly, they clearly offer no support for pessimistic views that would link playing action games including violent content with decreased civic or prosocial behaviors.

**Table 2**

Regression results for civic engagement.

Variable	$\beta$	t	Significance
Age	.08	2.23	.03
Female gender	.08	2.00	.05
Parental involvement	.03	0.84	.40
Parental tech savvy	.12	3.62	.001
Violence exposure	-.02	0.62	.54
Interaction term	.07	1.91	.05

$F(6,872) = 4.30$ ,  $p = .001$   $R = .17$ , Adjusted  $R^2 = .02$ . Note: Interaction term is for parental involvement  $\times$  violence exposure.

**Table 3**

Regression results for prosocial on-line behavior.

Variable	$\beta$	t	Significance
Age	-.08	-2.14	.03
Female gender	.02	0.56	.58
Parental involvement	.04	1.05	.29
Parental tech savvy	.01	0.31	.76
Total video game use	.11	2.32	.02
Violence exposure	.16	3.13	.002
Interaction term	.01	0.36	.72

$F(7,848) = 2.48$ ,  $p = .02$   $R = .14$ , Adjusted  $R^2 = .01$ . Note: Interaction term is for parental involvement  $\times$  violence exposure.

Part of the misunderstanding about action games is the failure to recognize that, even though many games contain violence, they still offer opportunities for prosocial and civic behaviors. Thus, the categories of "violent" and "prosocial" video games may just not be mutually exclusive but, in fact, may tend to go hand in hand. Games of both the first-person-shooter genre and the MMO genre not only offer a multitude of activities for assisting other players with difficult missions or getting used to the pitfalls of the game, but also offer multiple opportunities for team-oriented play in which individuals players must work together toward a single goal (Barnett & Coulson, 2010). On a more practical level, attempting to parse out separate "violent" and "prosocial" game categories may be highly misleading, increasing multicollinearity effects in multivariate analyses and misinforming rather than informing the scholarly community. This is particularly true in a research field which is already experiencing difficulties with a high degree of politicization in which the rhetoric of some scholars vastly exceeds the quality, strength, consistency and validity of the available data (Ferguson, 2010; Grimes, Anderson, & Bergen, 2008; Kutner & Olson, 2008; Sternheimer, 2007).

As noted in the results, parental involvement is actually associated with children's increased participation in action games with violent content. This may, on first blush, seem paradoxical, when parental involvement is so often thought of as restricting. Yet, as indicated earlier, it is likely that parents who become familiar with gaming experience are less concern with the content of the games (Ivory & Kalyanaraman, 2009; Kutner, Olson, Warner, & Hertzog, 2008). It may be very easy for parents to express concerns about action games when they are not familiar with the games, coupled with the news media which tend to focus on extreme arguments about their alleged harm (e.g., Thompson, 2007). Several scholars have already argued that concerns about action games and media violence in general, thrive in an atmosphere of "moral panic", to which some other scholars contribute (Ferguson, 2010; Gauntlett, 1995; Kutner & Olson, 2008). It appears that parental involvement decreases the restriction of violent content. Even though speculative, it may be that many parents decide that the reasonable response is to allow for continued play of action games, if with parental involvement and supervision.

As with any study, the current one has limitations. Given the correlational nature of the study, causal attributions should not be made. Effect sizes found for statistically significant results were also very small and should not be over interpreted. Although the current multivariate analysis included several relevant control variables, it would have been desirable to have more. For instance, we had no data on child's personality or peer influences. Moreover, although the Lenhart et al. (2008) dataset did have several questions related to parental involvement in civic behaviors, the reliability of the scale comprising these items was very low and not acceptable for inclusion in regression. It would have been ideal to control for parental influences via parents' own involvement in civic behaviors, but the current dataset did not allow for this.

Regarding future directions, we first offer a cautionary note. Our concern is that the field of study for action games and civic engagement, although fairly sparse, has gotten off to a clumsy start, damaged by multicollinearity effects in some studies, and influenced by anti-game ideological perspectives wedded to the social learning paradigm in others. With this in mind, we urge all researchers to explore multicollinearity effects with greater care, particularly when examining both "violence" and "prosocial" game content, as well as when using interaction terms. Further, we express the concern that theory has actually been damaging, rather than helpful in this realm, particularly when the theories involved have become dogmatic and the process of scientific inquiry is akin to pounding square empirical pegs into round theoretical holes (Fer-

guson, 2010; Grimes et al., 2008; Kutner & Olson, 2008). Therefore, we argue for a move away from theory, at least for the moment, and toward basic data-driven research. That having been said, more research on the impact of action games on civic engagement would certainly be welcome, especially those studies employing longitudinal designs and those controlling well for parental, personality and peer influences on civic behaviors.

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