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Do Online Gaming Experiences Affect Civic Engagement? The Relationship between Gaming Experiences, Parental Involvement, and Real World Civic Engagement

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DO ONLINE GAMING EXPERIENCES AFFECT CIVIC ENGAGEMENT? THE RELATIONSHIP BETWEEN GAMING EXPERIENCES, PARENTAL INVOLVEMENT, AND REAL WORLD CIVIC ENGAGEMENT

BY

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DEDICATION

For Dr. Robert Allan Fiala. Thank you for everything you've done for me, Bob. I couldn't have gotten this far without your support.

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ABSTRACT

The majority of literature that concerns itself with the effects of video games and youth focus on negative potential outcomes, like the potential for increased antisocial behavior. What's more, that literature also focuses on the content of the games themselves and not necessarily on the actions of other players within games. This study considers what happens when players witness antisocial behavior acted out by other players as well as intervention against that behavior and the role that parental involvement plays in mediating the direct effects of gaming and youth civic engagement. Weighing three differing perspectives on the relationship between video games, technology more broadly and aspects of civic engagement, this study utilizes data from a nationally representative survey using multivariate regression analyses. Those analyses highlighted positive relationships between prosocial gaming behavior and three of the five aspects of civic engagement considered across increasingly complex statistical models. These results seem to support the perspective that argues that the effects video games and their content have on youth civic engagement is contextual, in that there is

room for positive relationships, and not simply negative ones. These results are

discussed in a way that reframes the discussion on the nature of games and their ability to

foster more than just antisocial or aggressive behavior.

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Introduction

Civic engagement refers to getting involved with real world problems, such as discussing those problems, organizing protests, voting for politicians that promise to fix those problems, and giving to charities or volunteering their time for those causes. While significant levels of civic engagement characterized the US in the early 20th Century, the latter half of the 20th witnessed decreases in a variety of indicators of civic engagement. For instance, voting participation among American citizens, as well as the number of associations people join has steadily decreased (Kahne, Middaugh and Evans 2009; Putnam 2000). The decline in associational membership is cross-generational, meaning older people are leaving organizations and younger people are not joining as often as before.

Some scholars have posited that technological advancements are responsible for the decline in some forms of civic engagement (Putnam 2000; Collins and Freeman 2013; Gentile et al 2004). Scholars of community have long been interested in how technological advancements have transformed the way we connect with people and engage in communities (Wellman 2004). People are more able than ever to personalize their communities, picking and choosing what groups they want to be in thanks to the connecting power of the internet. Putnam (2000) makes the case that one potential reason why membership in organizations is on the decline is because of new media. The decline began around the time the television became available to purchase in the mid-1950s and continued to the present day. The advent of the internet in the 1990s provided another way for people to entertain themselves without leaving their homes. The relative ease of finding groups, like online forums and chat rooms, that cater to specific hobbies

and interests means people can forge ties with others that share similar interests, compared to joining associations in real life.

The internet has done more than simply give users chat rooms and forums to communicate with one another. People have used their internet connections to play games with one another since almost the beginning of the general public's ability to own personal computers through the medium of text-based adventure games. Video games have exploded in popularity, especially since the 1980s. As of 2011, 91% of youth in America play video games (Van Camp 2011). As time passed, the games have become more complex and varied, but their ability to connect players with one another has stayed largely the same. I contend that online games like *World of Warcraft*, *EverQuest*, or even *Halo* and *Call of Duty* are virtual spaces where people can forge ties like in a forum or chat room. If playing online video games is similar to real world organizations in the ability to help players forge ties, like other online communities, does online video game play influence civic engagement among youth?

There are three different perspectives to considering this question. Two imply that video gaming correlates with decreased real-world civic engagement. The first of these argues that community has not declined, but has simply moved online, in favor of virtual forums and chat rooms (Putnam 2000). Before technology enabled massive and convenient communication the world over, people joined organizations like social clubs and bowling leagues in their community. Putnam (2000) suggests that people join organizations to gain social capital. The choice of organizations for a specific hobby might be limited in certain communities, and the opportunities to gain social capital were correspondingly diminished. Once mass communication and technology, like the

internet, became accessible, people could find communities of people in chat rooms and on forums that were specifically for a hobby or set of hobbies. These online opportunities for social capital, suggests Putnam (2000), far outweighed the real life opportunities and, as a result, contributed to the lower organization membership rates in late modernity. Video games are similar in their potential for social capital, and players might abandon civic opportunities in real life in favor of these virtual opportunities.

The second perspective holds that an entire generation is becoming less civically engaged, and in certain circumstances antisocial, because of electronic media (Ferguson, 2014). There is concern from research that video games have too much violent content, and expose players to antisocial behaviors they would not otherwise have been exposed to (Anderson 2004; Ferguson 2014; Funk et al 2004). Current popular opinion also worries that because of video games we may be losing a generation of people to virtual worlds that cut them off from the people around them (Ferguson 2014). The fervent discussion about video games being responsible for school shootings and mass murders has created a moral panic where video games are constructed as the chief factor that turns people away from positive social engagement (Mears 2011; Savage 2011). The resulting antisocial drift that video games elicit created a potentially dangerous class of people, with no real ties to those around them.

The third perspective disagrees with defining technology outright as detrimental to normative and prosocial behaviors. Research has found that the effect video games have on players is contextual (Durkin and Barber 2002; Gentile and Gentile 2008; Ferguson 2010; Ferguson and Kilburn 2010). Video games can be used to increase dexterity, coordination, critical thinking, and gaming provide players with a platform to

socially engage with other players (Durkin and Barber 2002; Ferguson 2010). Video games can also be used as teachers to motivate players to acquire and master skills (Gentile and Gentile 2008). This perspective implies that there is a positive relationship between witnessing and engaging in prosocial gaming behavior and real-world civic engagement, just as there is an inverse relationship between witnessing and engaging in antisocial behavior and real-world civic engagement. That is, the relationship between gaming and civic engagement depends on the content of the gaming experiences.

Despite increasing interest in the consequences of video games for youth, little research has attempted to adjudicate between these three perspectives. Consequently, we do not know for certain that video games are actually drawing people away from society just to get lost in virtual spaces with no ties to real people. The internet and video games have become ubiquitous in modernity, so what happens to community when the way youth communicate and spend leisure time transforms?

To address these questions, I use unique survey data collected by the Pew Institute in 2008 on teens and their game play experiences, habits, and civic experiences. Youth are the subjects here because the above perspectives assert that violent content experienced in games push young people away from prosocial activities. I build on previous research on the relationship between playing video games and civic engagement in two ways. First, whereas previous work has focused almost exclusively on one aspect of video gaming—time spent playing video games—I address additional aspects of the gaming experience that might influence civic engagement including how players interact with each other within games, players' prosocial and antisocial behavior online, specifically does witnessing antisocial and racist behavior online have a relationship with

decreased real world civic engagement. Second, I will also assess statistical interactions between video game experiences and a potential mediating variable, how involved players' parents are in what and how much they play.

If online prosocial behavior – like respondents helping or guiding other players, or respondents witnessing intervention against racist and aggressive behavior by others online – is found to have a positive relationship with real-world civic engagement, then a contextual approach to the nature of gaming would be supported. Conversely, if antisocial online behavior – like respondents hacking games or creating mods to give themselves unfair advantages, or witnessing racist and aggressive behavior by others online – is found to have a negative relationship with respondent civic engagement, then the moral panic argument outlined by Ferguson (2014) is supported. Finally, if either prosocial or antisocial online behavior have negative relationships with civic engagement outcomes, then Putnam's (2000) argument is more appropriate.

In the following sections I begin by outlining the prevalence of video gaming through time and some research on the motivations of game players in general to provide context for the study. Next I review previous research and theoretical literature on the consequences of gaming to situate the current study in the larger discussion on civic engagement, youth, and video game play, specifically Putnam's assertion that civic engagement opportunities could have moved online, the motivating power of the internet, and research from Psychology and Communication on video games and teens. I then outline my research questions, data, and analytical strategy before discussing my findings and conclusions.

Conceptual Framing

Gaming Prevalence and Motivations to Play through Time

The profile for an average game player (gamer) has changed drastically since the advent of video games in the 1980s. When video games were gaining popularity, the average gamer tended to be younger, male, and was usually white (McClure and Mears 1984). The average gamer was also interested in competitive activities, science fiction, and enjoyed movies more than other people, as well as reading (1984). McClure and Mears (1984) also suggest that the average gamer was "brighter" (276) than the average person. As time has passed, more people of all ages, classes and sexes have started to play games (Williams, Yee and Caplan 2008; Yee 2006)

Video games have exploded in popularity since the 1980s with the release of home consoles, advances in technology making video games more affordable, and increasingly more genres of games to play. Since the meteoric rise in popularity, more diverse people play games, and as a result the race, class, and gender makeup of player bases are more heterogeneous, (Griffiths, Davies and Chappell 2004; Caplan and Yee 2008; Yee 2006). Griffiths, Davies, and Chappell (2004) found that the younger the player, the more hours they spend in-game per week, which exposes them to more content from the game itself, but also to other players.

Research indicates that players are more able to form both platonic and romantic social ties as they spend more time in games (Cole and Griffiths 2007; Yee 2006). On the whole, players who make friends through the game environment report that they

create stronger bonds than they do with their real life friends, with online friends knowing secrets about players their real life friends do not (Cole and Griffiths 2007; Yee 2006). If players are investing more time online it might be a reason why they are pulling away from civic life.

Consequences of Video Game Play for Youth

The literature across the different social sciences disagrees on the broad consequences of video games for children and adolescents. The majority of researchers, particularly in psychology, suggest that video games have harmful effects on people, particularly children, but in the field of communication there is still dissent. The reasons behind this dissent are valid and well argued. I outline both positions below.

Since the media began linking violent video game play to school shootings and murders, the social sciences have attempted to discern the true effect video games have on children and adolescents. Some studies have found that video games do indeed cause an increase in aggressive behaviors and responses (Anderson 2004).

Yet, research on the consequences of playing video games concerns itself with not only the behavioral outcomes, but also the symptoms that come along with more aggressive behaviors to establish a causal link. The more young people play video games, the more likely they are to feel comfortable with aggressive actions and behaviors (Uhlmann and Swanson 2004). Young players are more likely to learn aggressive cognitions, and players who play violent games frequently are, over time, more likely to learn more aggressive cognitions more quickly than players who do not (Gentile and Gentile 2008). Violent video games are not only structured to teach game mechanics, but

they also teach players how to react in situations within and without the games. These aggressive cognitions normalize aggressive, and more broadly speaking, antisocial behavior when faced with many different social situations. Students are more likely to argue with teachers, do poorly in school, and get into physical fights more often (Gentile et.al. 2004). Research has found a positive correlation between violent video game play and hostility. Desensitization might be a factor in the relationship between playing violent games and real world aggression (Funk et. al. 2004). It is possible that violence of any kind, be it real life or virtual, alters behavioral processes and cognitions which may lead to desensitization. In short, exposure to virtual violence increases, empathy decreases.

These studies notwithstanding, Ferguson (2007) contends that there has been an over-publication of video game and aggression studies that discount other, perhaps more powerful explanations for aggression, such as poverty or the interaction between genetics and environment. As a result, the relationships between video games and aggression may be inflated (Ferguson and Kilburn 2010). This focus on, and inflation of, the relationship between video games and aggression feed a moral panic about media in this generation (Ferguson 2010). Ferguson (2010) argues that violent video games do not teach aggression; rather they transmit information and teach players through visuospatial learning and helps players integrate socially through shared gameplay. Some research even declares video games to be a positive influence on adolescents (Durkin and Barber 2002). They are a stimulating leisure activity that is both challenging and fun. Adolescents who played more than their peers scored higher on measures of family closeness, school engagement, and self-concept, among others.

Williams, Yee and Caplan (2009) found that gaming variables had statistically significant relationships with problematic internet use (PIU) but these relationships had marginal effects and accounted for only a bit of the variation in the outcome. PIU is defined here as "showing signs of compulsive or detrimental video game use" (Collins and Freeman 2013:1933), and gaming variables were linked to higher and potentially compulsive internet use, but research also found that video game players have more social capital in virtual spaces than in real spaces (2013). Collins and Freeman (2013) also found that players who are not problematic only have more social capital than non-players. These findings suggest that personality is not a factor in these prosocial tendencies.

Research tells us that video game play either creates opportunities for youth to learn violent cognitions and antisocial behavior, or opportunities for creating social ties with the people they play with and garner social capital from their online activities. The current study will provide more evidence that will support one of three differing perspectives on how games, youth activity and development relate to one another. Although research has focused mostly on the prosocial and antisocial consequences of games for youth, fewer studies have focused on the relationship between gaming, technology and civic engagement. I turn to these studies next.

Consequences for Civic Engagement in a Technological World

This section will focus on technology more generally as it relates to civic engagement because there have been few, if any, studies done on civic engagement and video games specifically. Hargittai and Shaw (2013) have investigated the commonly

held belief that online interactions play a key role in mobilizing voters, in particular young adult voters. They looked at online political engagement and how the internet was used by their survey respondents during the 2008 presidential election. They found that online political engagement, internet literacy, and social media compliments real world political engagement. Internet use does not amplify political engagement the way we commonly think it does, but rather it provides young people with another path to get politically involved (Lewis, Gonzales, and Kaufman 2012).

Researchers have looked into how the internet can affect social capital. The ability to communicate via the internet at any time might increase, decrease or simply supplement the social capital of internet users (Wellman et al 2001). Heavy internet use, however, does increase involvement in voluntary organizations and politics. There also seems to be a positive relationship between online and real world volunteer organization participation and politics.

Before the gradual decline in social organizational participation during the end of the 20th Century, people would make professional and informal connections and participate in political, civic, and religious organizations, and some still do but at a greatly reduced rate, so what happened? That is the question Putnam (2000) attempts to answer. He makes cases for a few potential causes. When people have the ability to move to different neighborhoods or to the suburbs, they remove themselves from social spaces where connections can be readily made. There might not be many groups that interest them in their new environment, so they participate less. Technology and mass media, specifically television might also be to blame. Television creates opportunities and motivation to stay home during leisure time and watch entertainment programs.

Because most people would rather consume information and entertainment at home, by themselves or with their family, they are not going out into their community and getting involved in organizations with other people.

Certain phenomena qualify the general trend where organizational membership has been declining over the years. One phenomenon germane to this topic is how the internet serves to draw people into organizations (Putnam 2000). The internet draws people away from physical organizations and ties, but provides avenues for people to gain social capital and prestige in a very specific hobby or interest that might not be supported in their physical environment. In today's world, one of those specific interests would be video games, in one form or another. People may sacrifice physical organization membership in order to be entrenched in a community within a game to obtain social capital. Becoming a part of a community means conforming to group norms and behaviors, and acting them out for prestige recognition. This becomes problematic when the behavior required to gain social capital is considered antisocial in the real world. This behavior is not the only example for what prosocial behavior would look like, in fact, players likely see their parents and other adults demonstrate prosocial behavior which might also affect how they engage in civic life.

Despite the rise in internet gaming over the last few decades, much less research has examined the relationship between gaming and civic engagement. The exceptions are recent studies that data from the Pew Institute. Ferguson and Garza (2011) found that action games increase both civic engagement and online prosocial behavior, but their constructed parental involvement measure has a more powerful relationship to prosocial behavior. Ferguson and Garza (2011) argue it is more likely that a healthy relationship

with parents leads to higher civic engagement and prosocial online behavior. This leaves questions about how other genres relate to civic engagement and prosocial behavior. De Simone (2013) finds that roleplaying games (RPGs) and first person shooters (FPSs) are the two genres most likely to enable people to see and hear aggressive and racist behavior and language. However, De Simone (2013) does not consider how or if these behaviors affect civic engagement. RPGs and FPSs are also the genres most likely to encourage people to work cooperatively and create and manage play groups or guilds.

The previous research on video games has examined little more than the amount of time respondents play games, and even research that utilizes the Pew data does not take into account important aspects of video game play that could affect civic engagement and other potential outcomes. I go beyond this literature by considering the relationship between witnessing aggressive, racist and sexist behavior online, their intervention(s) and how they affect players' civic engagement. The previous literature has focused on civic engagement and whether games were played, as well as civic engagement's relationship with the genre of games played, but that only accounts for the content of the game while leaving out *the interactions between players* in a game.

Influences of Witnessed Behavior

When players witness others acting out aggressive or racist behavior in-game, it may send a signal that it is normative behavior. Perhaps players would feel that they can get away with using racist language because they are anonymous online with few consequences from official moderation teams. Whatever the reason it happens in the first place, when players witness this behavior they may feel it is normative and encouraged to

act that way. The situation is similar for sexist behavior online as well. Witnessing others in-game using pejorative language, send signals that this behavior is normative. It is important to note that witnessing antisocial behavior once does not increase the likelihood of engaging in that behavior, but rather when there is a *pattern of behavior* the likelihood is increased (Matsueda 1982). Witnessing other players intervene against racist and sexist behavior online may help foster more prosocial behavior online. Players would see others in-game say something to those who are engaging in racist and sexist behavior and they might feel empowered to do it themselves. They would use their social capital to do maintenance on their community and help root out some antisocial behaviors. The players who were inspired to act might also use their social capital in the real world as well, like volunteer for a cause or give to charity. Players have, in the past, used their online connections to raise money for different causes and raise awareness about different issues. One of the mechanisms for prosocial behavior in the real world might be witnessing prosocial behavior in-game. As a person associates themselves with others who routinely engage in either prosocial or antisocial behavior they are more likely to believe that that behavior is normative, acceptable, and perhaps even encouraged. This is even more the case in situations where antisocial or prosocial behavior is praised or rewarded (Burgess and Akers 1966).

Parent Variables and Demographic Variables Affect Gameplay Variables

The literature on video game play rarely takes into account the role parents play in how teens interact with video games. Video games are treated in a vacuum where outside influences from parents are not taken into consideration. Ferguson and Garza (2011) have used the same data taken from the Pew Institute used here find that action games

actually increase civic engagement *and* online prosocial behavior. Ferguson and Garza (2011) also note that while this relationship is statistically significant, it is not as powerful as parents being involved in what kind of gaming content their children consume.

In figure 1 I outline my hypotheses. I hypothesize that video game play time, antisocial experiences, like witnessing other players engage in racist or aggressive behavior, and prosocial experiences, like witnessing intervention against racist or aggressive behavior, affect the predicted level of civic engagement for an individual. I predict that parental attachment, measured by how involved parents are in their children's video game playing, as well as variables measuring demographic variables like race, SES and gender also have an effect on the predicted level of civic engagement for an individual. These two sets of variables do not have effects on their own, but I hypothesize that the demographic variables and parental attachment affect play time, prosocial, and antisocial experiences in games as well as the outcome. In addition to these indirect effects, I predict that there is an interaction effect between the game play variables and parental involvement that moderate the direct effect that the video game play variables have on the outcome.

The study's findings will support one of the three perspectives discussed previously. Extending Putnam's (2000) argument, even if players engage in prosocial behavior online they may not be engaging in civic activities in the real world. If Putnam's argument is to be supported here, the prosocial gaming behaviors that players engage in would have a negative relationship with measures of real world civic engagement. If the general psychology and popular opinion argument is found to be

supported, engaging in antisocial gaming behaviors and witnessing antisocial behaviors would have a negative relationship with civic engagement. Finally, if the effects video games have are contextual, engaging in prosocial gaming behaviors would have a positive relationship with civic outcomes, as well as witnessing intervention against antisocial behaviors, and these effects may be mediated by the amount of parental involvement teens have based on what and how much their parents allow them to play.

Figure 1: Conceptual Pathmodel
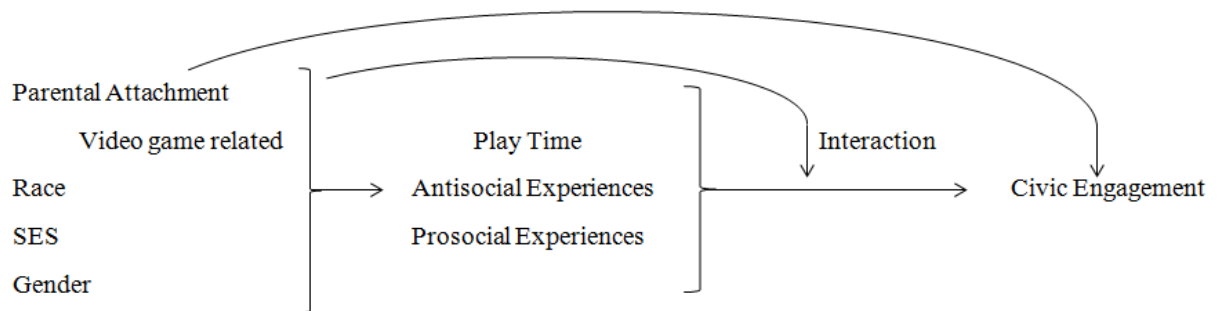
Data

The study will use data from the Pew Institute study on teen video game play habits done in 2007 and 2008. The respondents were contacted by using random digit dialing with active blocks of telephone numbers. The final sample was 1102 12- to 17-year-olds and their parents. For those that consented, the parents were interviewed first and then an interview was done with target children within the age range of interest. The contact rate for the survey was 84% with a cooperation rate of 41% and a completion rate of 78%, which made for an overall response rate of 26%. The sample was weighted to correct patterns in nonresponse[1]. The Pew data set is the only one that focuses on in-depth questions about what behavior people engage in and witness in games. It also asks questions about the kinds of games people play and how people play with others. It is the data set best equipped to answer the questions I raise here because it does more than simply ask how often a respondent plays video games in a week.

Table 1[2] presents covariates measured in the Pew survey. Child civic engagement variables are five separate components in separate models. These five variables are binary, where 1=yes and 0=no, and they asked whether teens have ever volunteered, raised money, campaigned, stayed informed on current events or engaged in peaceful protest. These variables are *volunteered in my community*, *done something to help raise money for a charity*, *discuss politics during election season*, *stay informed on current events*, and *taken part in peaceful protest or march*.

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[1] These weights were created using Sample Balancing using the Deming Algorithm. These weights were based on parental demographics like sex, age, education, race and region using US Census definitions. The child demographics used for weighting were gender and age. The weights ensure that the demographic characteristics in the sample closely approximate the demographics of the national population.
[2] All tables are found in Appendix A

Child respondents are asked how often they engage in prosocial gaming habits. *Prosocial game action* is a construct of questions where they are asked if they help other players, play a game where you think about ethical issues, and organize or manage a guild or group. Answers are recorded on a Likert scale where 1 is "never" and 3 is "often". The reliability coefficient for this construct, 0.852, meets the accepted standard to be used (Nunnally and Bernstein 1994:265). Child respondents are also asked how often they engage in antisocial gaming habits. *Antisocial game action* is a construct of questions that ask respondents if they hacked games to gain an advantage, or if they used "mods" to change aspects of a game. Their answers are recorded on a Likert scale where 1 is "never" and 3 is "often". The reliability coefficient for this construct is 0.753, which means it is also reliable enough to be used in the analysis. *Gaming frequency* is a Likert scale, where 1 is "once or twice a week" and 7 is "daily".

The variable for how often a child respondent witnesses aggressive action in a game is a Likert scale where 1 is "never" and 3 is "often". A follow up variable asks the child respondents if they see other players ask aggressive players to stop, and their responses are scaled in the same way. A similar variable measures how often child respondents witness racist, sexist or hateful activity. Those responses are recorded on a Likert scale where 1 is "never" and 3 is "often". A follow up variable asks the child respondents if they see other players ask a hateful player to stop, and their responses are recorded in the same way. For this analysis, those two questions for racist and aggressive behavior respectively were combined, and then dummied out. These dummy variables are *did not witness racist behavior online, did witnessed racist behavior online, witnessed did witness racist behavior and intervention online, did not witness aggressive behavior*

online, did witness aggressive behavior online, and did witness aggressive behavior and intervention online.

Parental civic engagement is a scale that combines all questions concerning what civic activities parent respondents had participated in. These questions involve volunteering, raising money, staying informed on current events, and peaceful protest. The answers are binary where 1=yes and 0=no. This construct has a reliability coefficient of 0.485, which is well below the 0.7 standard. For this reason I only employ the parental civic engagement scale in a few models where there is no parent civic engagement question counterpart for a question asked of teen respondents. Finally, parent respondents are asked how often they knew which games their children were playing, if they played games with their children, whether they check the ratings of the games their children play and if they stop their children from playing certain games. These four variables are Likert scaled where 1 is "never" and 4 is "always". These variables are combined to create *parental involvement*, a scale measuring what parents know about their children's gaming habits as well as whether and how often they intervene, and this measure was taken from Ferguson and Garza (2011). The reliability coefficient for *parental involvement* is 0.734.

Child age is made by using the variables in the survey that requested the respondents' ages. *Parental education* is taken from a question using a scale for highest level of education achieved. *Parental income* is taken from a question using a scale for annual income. *Sex* is a binary variable, with 1=male and 0=female. *White*, *black*, *Latino* and *other* are dummy variables created from the self-identified race of the respondent indicated through two questions. The first question asks the respondent if

they identify as Hispanic, a binary variable with 1=yes and 0=no and a second question that asks if they identify as white, black, Asian, American Indian, mixed or other. These variables were combined to group all the respondents who identified as Hispanic together into *Latino* and all other respondents to their corresponding racial categories as *white*, *black*, or *other*.

Methods

For this study, I will be using logistic regression for the analytical models. Logistic regression is appropriate here because the outcome variables for child civic engagement are binary responses. Each version of the model will be run five times, one for each facet of youth civic engagement. There will also be four models in this study. I will first present a model with just the video game play variables to see what effects they have on their own.

The second model will only use parental variables and demographic variables. For this model, and the integrated model that will follow, I am including just the parent counterpart variable for the specific outcome. For example, I will only include the variable that asks parents if they volunteered in the last twelve months in the model where teen volunteering is the outcome. There is also one extra question asked of teen respondents that was not asked of their parents, and that is whether during election period teens attempt to convince their friends to vote for a particular candidate. For this outcome I will use the parental civic engagement scale as no specific counterpart for parents. The third model will be an integrated one where both video game and parental questions are included. Finally, the fourth model will test for interactions between the most robust video game variable and the most robust parental variable.

Results

Before discussing results from multivariate models, Table 2 presents bivariate associations. Table 2 reveals that child civic engagement variables are correlated with one another, not surprisingly. The same is true for the civic engagement variables regarding parents. More interestingly, the child civic engagement variables are highly correlated with their parent civic engagement counterparts. These relationships are robust, and they should remain so through the regression analyses. *Prosocial gaming behavior* is correlated to three dimensions of child civic engagement, and *antisocial gaming behavior* is correlated to four, but the strength of the correlations are not as strong as they are for *prosocial gaming behavior*. The suite of witnessing variables has next to no correlations with the variables for child civic engagement. These bivariate relationships suggest that witnessing prosocial and antisocial behaviors online do not have a direct association with youth civic engagement, but the respondent's own online behavior might.

The video game variables are correlated with one another. This is not surprising because of how they are constructed. *Prosocial* and *antisocial gaming behavior* was constructed from the same multi-part question using different sections to create them. This multipart question asks child respondents if they have engaged in certain behaviors while gaming, and some of these behaviors are considered prosocial, and other antisocial. The different behaviors were grouped as such into the scales that created both *prosocial* and *antisocial gaming behavior*. The two sets of witnessing behavior variables are dummies, and *gaming frequency* is correlated with all the other gaming variables. This

correlation makes sense considering that the longer people play games they are exposed to more and different people who might engage in the behaviors of interest to this study.

Table 3 presents estimates of logistic regressions for each of the 5 child civic engagement outcomes focusing solely on video game variables. *Prosocial gaming behavior* is statistically significant in 3 of the 5 models. The magnitude of the effect is similar in each of those models. For a standard deviation change in *prosocial gaming behavior* a respondent is about 1.1 (between 4 and 7% more likely for every standard deviation increase) times as likely to engage in civic behaviors. *Antisocial gaming behavior* is marginally statistically significant in only 1 of the 5 models. Specifically, a standard deviation change in *antisocial gaming behavior* corresponds to a 12% (2% less likely for each standard deviation increase) decrease in the likelihood of volunteering. *Witnessing racist behavior online* is marginally statistically significant in one of the 5 models as well. Compared to players who did not witness racist behavior online, players that did are 2.35 (5% more likely for every standard deviation increase) times more likely to stay informed on current events. Figure 2 demonstrates the relationships between *prosocial gaming behavior* and the relevant civic engagement outcomes.

Figure 2: Graph of *Prosocial Gaming Behavior* and Civic Behavior Outcomes from Table 3
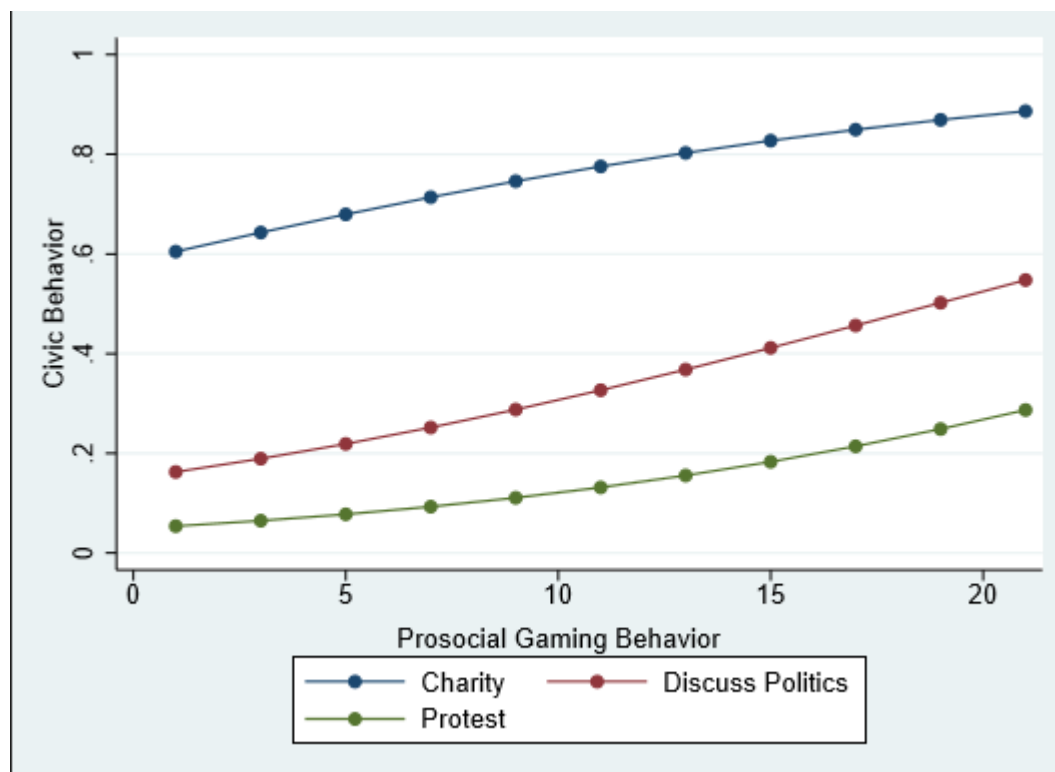
Table 4 present estimates of logistic regressions for each of the 5 child civic engagement outcomes focusing solely on parental and demographic variables. Corresponding parental civic engagement variables were statistically significant in all models. For example, parental *volunteered in my community* is statistically significant with child *volunteered in my community*. For a standard deviation change in the parental civic engagement variables respondents are between 2 and 3 (between 4 and 5% more likely for every standard deviation increase) times as likely to engage in specific civic behaviors. *Child age* is statistically significant in 1 of the 5 models. When there is a 1.7 year increase in *child age* respondents are 1.23 times more likely to stay informed on current events. *Parent education* is marginally statistically significant in 2 of the 5

models. For a standard deviation change in *parent education* respondents are 1.03 times more likely to volunteer and 1.145 times more likely to stay informed on current events. *Parent income* is statistically significant in 1 of the 5 models as well. As *parent income* increases, there corresponds a 14% decrease in protesting. The most noteworthy findings from Table 3 and Table 4 are that a respondent's prosocial actions online have a strong relationship with the civic engagement outcomes, witnessing antisocial behavior online has little to no relationship with the civic engagement outcomes, and that parental civic engagement is a strong predictor of child civic engagement.

In Table 5, I combine the variables from Tables 3 and 4 for a more complete model. After controlling for parental and demographic variables, *prosocial gaming behavior* remains statistically significant in 3 of the 5 models. For a one standard deviation change in *prosocial gaming behavior* respondents are about 1.1 (between 4 and 7% more likely for every standard deviation increase) times more likely to have engaged in volunteering, charity, and protesting. *Antisocial gaming behavior* is no longer statistically significant in any of the 5 models. *Witnessing racist behavior online* as well as *witnessing aggressive behavior online* became marginally statistically significant after controlling for parental and demographic variables. Compared to players who did not witness racist behavior online, respondents who did are 38% (3% less likely for every standard deviation increase) less likely to stay informed on current events. Compared to players who did not witness aggressive behavior online, respondents who did are 2.03 (4% more likely for every standard deviation increase) times more likely to stay informed on current events. Each of the parental civic engagement variables remained strongly statistically significant in their respective models. In each of the four models, for a

standard deviation change in the relevant parental civic engagement variable respondents are between 2 and 3 (between 4and 5% more likely for every standard deviation increase) times more likely to have engaged in civic activity. *Child age* is marginally statistically significant in 2 of the 5 models, and is also strongly statistically significant in another model. When there is a 1.7 year increase in *child age* respondents are 1.08 times more likely to have volunteered or discuss politics during an election cycle, and 2.53 times more likely to stay informed on current events. *Black*, *Latino*, and *other* are statistically significant in 1 of the 5 models each. Compared to whites, people who self-identified as black are 1.95 times more likely to have attended a march or protest. Compared to whites, people who self-identified as Latino are 50% less likely to have supported a charity. Compared to whites, people who self-identified as other are 2.09 times more likely to have volunteered in the past. *Parent education* is statistically significant in 1 of the 5 models. For a standard deviation change in *parent education* respondents are 1.15 times more likely to stay informed on current events. I tested for interactions between parent and video game variables, but found no evidence for a moderating relationship. Figure 3 demonstrates the relationships between *prosocial gaming behavior* and the statistically significant civic outcomes in the models.

Figure 3: Graph of *Prosocial Gaming Behavior* and Civic Outcomes from Table 5
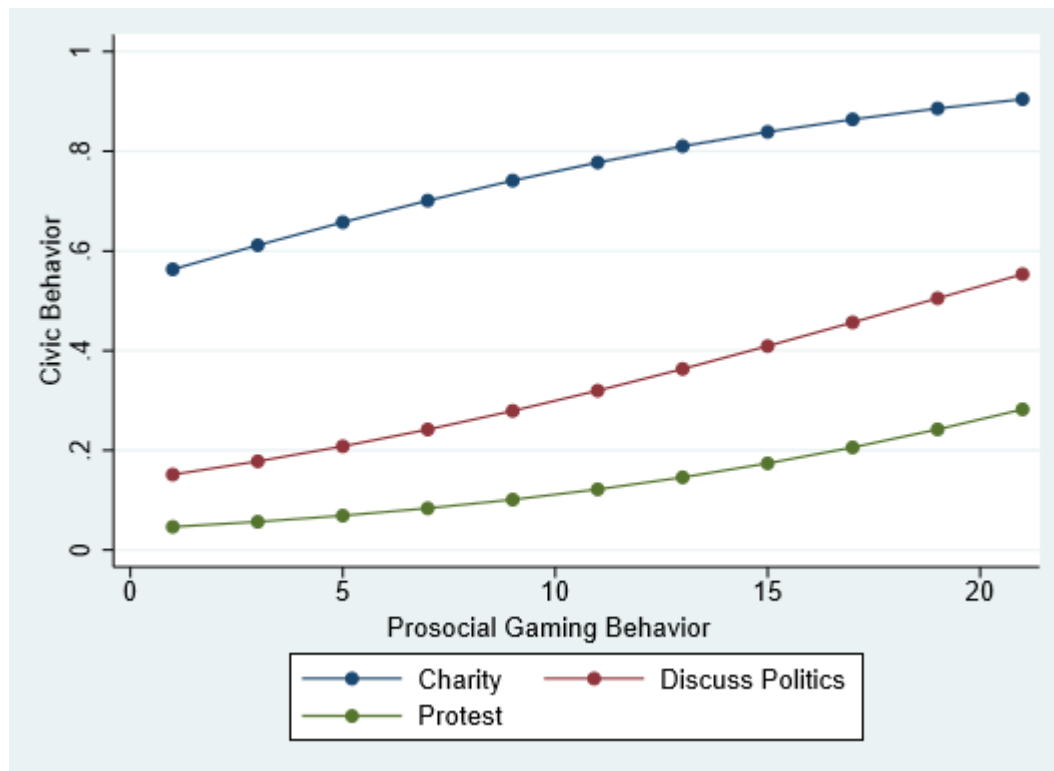
The interactions I attempted to use in this study were between *parental involvement* and *prosocial gaming behavior*, *parental involvement* and *gaming frequency*, as well interactions between the parental civic engagement variables and *prosocial gaming behavior*. None of these interactions were statistically significant. For this reason I have not included them in the study.

Additional Analyses

The above analyses highlight the importance of *prosocial gaming behavior* for youth and civic engagement. It is the only gaming variable in all the models that demonstrated a strong relationship net of all other covariates. It is important to

understand, then, what conditions help facilitate prosocial gaming behavior in youth. Table 6 is an OLS regression predicting prosocial gaming behavior based on how much respondents play every week as well as parental and demographic variables. *Gaming frequency* is strongly statistically significant. For a one point change in *gaming frequency* there corresponds a 0.469 point increase in the *prosocial gaming behavior* scale. *Child civic engagement*, a scale variable created in the same manner as the *parent civic engagement* scale used in the above analyses, is also strongly statistically significant. For a one point increase in *child civic engagement* there corresponds a 0.324 point increase in the *prosocial gaming behavior* scale. The *parent civic engagement* scale is moderately statistically significant, and the relationship is negative. A one point change in *parent civic engagement* predicts a 0.173 point decrease in the *prosocial gaming behavior scale*. *Parent involvement* is marginally statistically significant. For a one point change in *parent involvement* there corresponds a 0.064 point increase in *prosocial gaming behavior*. *Sex* is statistically significant. Compared to females, males have values for *prosocial gaming behavior* 0.790 points higher. *Black,* and *Latino* are statistically significant as well. Compared to whites, respondents who self-identified as black have *prosocial gaming behavior* scores that are 0.904 points higher and respondents who self-identified as Latino have *prosocial gaming behavior* scores that are 0.816 points higher. Finally, *parent income* is statistically significant. For a one point change in *parent income* there corresponds a 0.169 point decrease in *prosocial gaming behavior* scores. The variance in the model explains 14% of the overall variance found in the dependent variable.

Discussion

This study put forth four hypotheses: video game play variables, both prosocial and antisocial in nature, have an influence on civic engagement outcomes, parental involvement has an effect on civic engagement outcomes, parental and demographic variables have effects on video game play variables, and there is an interaction between these two types of variables that mediate the direct effect that video game variables have on the outcomes. These four hypotheses are further specified by the three perspectives I described previously: the psychology perspective holding video game variables have negative relationships with civic outcomes, Putnam (2000) arguing that even prosocial gaming behavior has a negative relationship with the outcome, and a more contextual approach where prosocial experiences might have a positive relationship with civic outcomes. The models demonstrated a number of robust relationships with the child civic engagement outcomes. The results demonstrated that respondents who report engaging in prosocial gaming behaviors online have higher rates of engaging in various civic engagement activities, which is consistent with previous research (Wellman 2004). Other consistent relationships across the different models in Tables 3, 4, and 5 are the relevant parent civic engagement variables. There is predicting power in the relationships between parental civic activities and the civic activities of their children (Ferguson and Garza 2011). One other reliable result is *witnessing racist behavior online* having a positive relationship with respondents reporting that they stay informed on current events.

There are a number of consistent results among the models in the tables. *Witnessing racist behavior online* is an interesting result. The mostly likely explanation

is that staying informed on current events actually provides respondents with working definitions and concrete examples of what racist behavior might look like in the real world, which would enable respondents to recognize when certain behaviors should be classified as racist in their own lives. The relationship does not specify causal ordering in the regression analyses, but theoretically it is likely that people staying informed in the real world bring that information with them online and apply it to what they encounter while there. The last consistent result we see among all the regression analyses is the relationship between *prosocial gaming behavior* and most of the civic outcomes. This result is consistent with the theoretical assertion that content encountered in games have contextual effects in the real world. I created an ordinary least squares (OLS) regression with *prosocial gaming behavior* as the outcome using some variables from the previous models to help determine what predicts *prosocial gaming behavior*. *Parental involvement* did not have a relationship with the civic engagement outcomes, which is counter to the findings from Ferguson and Garza (2011), but that is probably because they control for genre, where I do not. I left genre unspecified in these models to set a baseline for the entire sample from the Pew data rather than a specific subsection of it.

This last regression analysis demonstrates that the most important relationships that help determine *prosocial gaming behavior* for respondents are how often respondents play per week, their own civic engagement – this is not surprising, given the results from the previous regression results – and sex. The more a respondent plays, the more likely they are to engage in prosocial gaming behavior. The more engaged respondents are in their real world communities, the more likely to they are to engage in prosocial behavior online. Finally, males are more likely to engage in prosocial gaming

behavior, if only incrementally. There may be certain kinds of people that bring these civically minded ideas into the games they play; conversely, people may discover prosocial activity online and then bring those ideas out into the real world. Because there isn't a way to test for directionality in cross-sectional data, it will be difficult to discern without following up with new waves for this data set, or creating a new data set similar to this one and collecting new waves incrementally.

I expected to find some interaction between parental variables and gaming variables that might mediate the direct effect gaming variables might have had on youth civic outcomes. In the end I found no evidence that there are such interactions in these data.

Conclusion

Using unique data that asks deeper questions about how video games relate to real world outcomes, I investigated how players' prosocial and antisocial activities in games affect their real world civic engagement. I also analyzed how witnessing specific antisocial behaviors and interventions against those behaviors would affect civic outcomes in real life for players. To interpret the results of the analysis I presented three differing perspectives. The first, asserted by Putnam (2000), holds that civic engagement has not simply disappeared, but has moved online. The move toward digital civic engagement has however detracted from real world civic engagement by offering numerous and convenient opportunities for social capital and engagement. The second holds that overly violent and antisocial content has a positive relationship with real world antisocial behavior (Ferguson 2014; Anderson 2004; Funk et al 2004). This increase in antisocial behavior in the real world is argued to be a chief factor in the decrease in prosocial behavior in the real world (Mears 2011; Savage 2011). The third argues that gaming content is more contextual, where engaging in prosocial activities in games has a positive relationship with real world prosocial behavior (Durkin and Barber 2002; Gentile and Gentile 2008; Ferguson 2010; Ferguson and Kilburn 2010). Similarly, antisocial behavior in games is implied to have an inverse relationship with prosocial behavior in the real world.

Only about one and a half of the hypotheses were supported here. Video game variables do have an effect on civic engagement outcomes, but prosocial gaming behavior is more consistently related to the outcomes than any antisocial variable. In contrast to previous research (Ferguson and Garza 2011), I do not find that parental

involvement has an effect on youth civic engagement. I did not find this relationship to be significant because the previous research (Ferguson and Garza 2011) controlled for players who reported playing action games the most. This effect may only be present when controlling for specific genres of games. I also control for the demographics of the players and their parents, which is something Ferguson and Garza (2011) do not do. Parental and demographic variables have predictive power for prosocial gaming behavior. There was no discernable and significant interaction between parental and video game variables. The results found in this study do not support Putnam's (2000) perspective that even prosocial activity online detracts from real world civic engagement because I found that *prosocial gaming behavior* had a positive relationship with the civic outcomes. The general psychology and popular opinion perspective was likewise not supported. *Antisocial gaming behavior* did not consistently have any relationship with the civic engagement outcomes. The contextual perspective was supported with these analyses. *Prosocial gaming behavior* actually had a stable, positive relationship with civic engagement measures. In the end, it seems that the context in which players consumes video game content matters.

The limitations for this study restrict its explanatory power to certain extents. The study cannot discern directionality between prosocial gaming behavior and the civic engagement outcomes. This means we do not know which one motivates the other. It is cross-sectional data that does not have the ability to tell us if the relationships found here are simply coincidence, or if they are lasting ones. I also do not control for genre, which might limit my ability to discern civic outcomes for specific genres. The data are eight

years old, which might mean that the nature of these relationships has changed in the intervening years. Nevertheless, novel results have been demonstrated here.

We now have evidence that witnessing aggressive and racist behavior online have no discernable effect on real life behavior in teens. We also have evidence that suggests that it is more important that a teen's parents engage in civic activities to model behavior for their children. Prosocial video game behavior has a relationship with real world civic activity in teens. These results challenge the conventional wisdom in America and around the world, and can be used to assuage concerns over how video games affect people. These results are a foundation to continue research into how electronic media and the internet affect social life in modernity. This study suggests parents socialize their children based on their own civic activities, which supports that learning from primary sources is more important than from secondary ones like video games. Therefore, we must also ask if peers affect this relationship. We can investigate this question using the existing Pew data that were used here. Survey questions that ask if respondents play games with their friends or by themselves and if they play with their friends online or in person can be employed to better understand the foundational results demonstrated here. We can see whether peer relationships and social distance between them might also matter, controlling for the significant relationships from this investigation. These results also help to justify new surveys that ask broader questions about video games. If there were a new iteration of the survey this study was based on, we could see how relationships have changed over the last eight years, and if new waves of a potential new survey are continually done we can establish a longitudinal view of these phenomenon,

allowing us to understand whether prosocial gaming behavior motivates more civic activity in teens or vice-versa.

My research here is a first step to understanding how electronic media relates to real world behavior. Video games and other electronic media is not going anywhere, and the internet is certainly only going to become more prevalent in modern society. Understanding how this type of media affects people, and as this study demonstrates, if at all, we as social scientists and researchers can provide informed advice on policy and hopefully dispel some myths about the so-called harmful nature of video games and the internet.

Appendix A Tables

Table 1: Summary Statistics

	Obs	Mean/Prop	Std. Dev.	Min	Max	Alpha
Child Civic Engagement						
Volunteered in my communtiy	906	.702	.458	0	1	
Done something to help raise money for charity	902	.758	.428	0	1	
Discuss politics during election season	904	.314	.464	0	1	
Stay informed on current events	898	.693	.462	0	1	
Taken part in peaceful protest or march	905	.130	.337	0	1	
Prosocial Game Action	907	10.146	3.542	1	21	.852
Help or guide other players	703	2.036	.722	1	3	
Play a game where you learn about a social problem	845	1.515	.638	1	3	
Play a game that explores a social issue you care about	833	1.467	.635	1	3	
Play a game where you havw to think about ethics	847	1.647	.691	1	3	
Play a game where you help make decisions on how to run a community	842	1.552	.669	1	3	
Organize or manage game groups or guilds	854	1.372	.627	1	3	
Antisocial Game Action	907	2.770	1.081	1	6	.753
Use cheats or hack a game	894	1.474	.653	1	3	
Use "mods" or other player generated code to change aspects of a game	871	1.371	.613	1	3	
Did not Witness Racist Behavior Online	907	.496	.500	0	1	
Did Witness Racist Behavior Online	907	.127	.333	0	1	
Did Witness Racist Behavior and Intervention Online	907	.373	.484	0	1	
Did not Witness Aggressive Behavior Online	907	.355	.479	0	1	
Did Witness Aggressive Behavior Online	907	.163	.370	0	1	
Did Witness Aggressive Behavior and Intervention Online	907	.479	.500	0	1	
Gaming Frequency	907	4.559	1.478	1	7	
Parental Involvement	907	10.951	3.946	0	15	.734
Parental Civic Engagement	907	4.991	1.580	1	8	.485
Parent Civic Engagement						
Volunteered in my communtiy	907	.770	.421	0	1	
Done something to help raise money for charity	905	.818	.386	0	1	
Taken part in peaceful protest or march	903	.109	.311	0	1	
Stay informed on current events	903	.896	.306	0	1	
Child Age	907	14.649	1.702	12	17	
Sex	907	.524	.500	0	1	
White	907	.775	.418	0	1	
Black	907	.096	.295	0	1	
Latino	907	.082	.274	0	1	
Other	907	.062	.241	0	1	
Parent Income	818	5.868	1.945	1	8	
Parent Education	905	4.957	1.482	1	7	

Source: Gaming & Civic Engagement Survey of Teens/Parents 2008

Table 2: Bivariate Correlations

		1	2	3	4	5	6	7	8	9	10
	Child Civic Engagement										
1	Volunterred in my Community	1									
2	Done something to help raise money for charity	.126***	1								
3	Discuss politics during election season	.029	.068*	1							
4	Stay informed on current events	-.030	-.028	.134***	1						
5	Taken part in peaceful protest or march	.002	.058+	.099**	.054	1					
6	Prosocial Gaming Behavior	-.048	.110***	.141***	.021	.126***	1				
7	Antisocial Gaming Behavior	-.080*	-.014	.056+	-.018	.094**	.308***	1			
8	Did Not Witness Aggressive Behavior Online	.070	-.059+	-.024	.017	-.054	-.249***	-.145***	1		
9	Witnessed Aggressive Behavior Online, but not Intervention	-.027	-.037	.012	-.012	.052	-.049	.033***	-.328***	1	
10	Witnessed Both Aggressive Behavior and Intervention Online	-.052	.080*	.019	-.003	.009	.276***	.119***	-.711***	-.423***	1
11	Did Not Witness Racist Behavior Online	.062+	-.030	-.046	-.040	-.049	-.273***	-.211***	.513***	-.122***	-.394***
12	Witnessed Racist Behavior Online, but not Intervention	-.042	-.035	-.001	.091**	.030	.005	.038	-.137***	.352***	-.140***
13	Witnessed Both Aggressive Behavior and Intervention Online	-.041	.055	.050	-.007	.033	.283***	.190***	-.443***	-.112***	.513***
14	Gaming Frequency	-.068*	-.008	-.019	-.022	-.009	.237***	.164***	-.150***	-.024	.166***
15	Parental Involvement	-.072*	-.008	-.023	-.065+	-.005	.143***	.151***	-.141***	.034	.116***
16	Parental Civic Engagement	.193***	.118***	.049	.082*	.049	-.038	-.044	.014	-.049	.025
	Parent Civic Engagement										
17	Volunteered in my communtiy	.153***	.089**	.026	.033	-.021	-.019	-.056+	-.032	-.042	.058+
18	Done something to help raise money for charity	.107**	.121***	.023	.006	-.012	-.040	-.047	.021	-.016	-.005
19	Taken part in peaceful protest or march	.048	.022	.011	.038	.152***	-.015	-.011	.039	-.009	-.029
20	Stay informed on current events	.074*	-.022	.044	.168***	.032	-.011	.055	-.005	-.036	.030
21	Child Age	.095**	-.013	.055+	.166***	.000	-.073*	-.057+	-.073*	.105**	-.012
22	Sex	-.062+	-.030	.016	-.024	-.018	.173***	.263***	-.178***	.039	.140***
23	White	.055+	.026	.001	.040	-.090**	-.105**	-.142***	-.014	.016	.003
24	Black	-.058+	.009	.014	-.018	.096**	.114***	.160***	-.023	.059+	-.020
25	Latino	-.044	-.054	-.011	-.023	.016	.044	.030	-.002	-.066*	.045
26	Other	.044	.001	.014	-.024	.010	-.003	.008	.049	-.051	-.007
27	Parental Income	.112**	-.012	.010	.114**	-.063+	-.128***	-.081*	.039	-.038	-.003
28	Parental Education	.101**	.023	.028	.140***	.011	-.067*	-.051	-.005	-.028	.028

Source: Gaming & Civic Engagement Survey of Teens/Parents 2008

+ p<.1; * p<.05; ** p<.01; *** p<.001

Table 2: Bivariate Correlations Continued

		11	12	13	14	15	16	17	18	19	20
	Child Civic Engagement										
1	Volunterred in my Community										
2	Done something to help raise money for charity										
3	Discuss politics during election season										
4	Stay informed on current events										
5	Taken part in peaceful protest or march										
6	Prosocial Gaming Behavior										
7	Antisocial Gaming Behavior										
8	Did Not Witness Aggressive Behavior Online										
9	Witnessed Aggressive Behavior Online, but not Intervention										
10	Witnessed Both Aggressive Behavior and Intervention Online										
11	Did Not Witness Racist Behavior Online	1									
12	Witnessed Racist Behavior Online, but not Intervention	-.378 ***	1								
13	Witnessed Both Aggressive Behavior and Intervention Online	-.765 ***	-.294 ***	1							
14	Gaming Frequency	-.089 **	.002	.102 **	1						
15	Parental Involvement	-.088 **	.007	.090 **	.274 ***	1					
16	Parental Civic Engagement	.020	-.042	.009	.019	.085 *	1				
	Parent Civic Engagement										
17	Volunteered in my communtiy	.009	-.043	.021	-.039	.025	.627 ***	1			
18	Done something to help raise money for charity	.005	-.026	.010	.036	.024	.592 ***	.183 ***	1		
19	Taken part in peaceful protest or march	.032	-.005	-.026	.041	.066 *	.443 ***	.073 *	.099 **	1	
20	Stay informed on current events	-.024	-.002	.023	.004	.028	.413 ***	.020	-.030	.084 *	1
21	Child Age	-.111 ***	.106 **	.040	-.132 ***	-.260 ***	-.022	-.024	-.028	-.029	.067 *
22	Sex	-.193 ***	.052	.169 ***	.321 ***	.298 ***	.011	.023	-.008	.048	.010
23	White	.017	.015	-.033	.007	-.077 *	.079 *	.075 *	.019	-.069 *	.123 ***
24	Black	-.009	.033	-.011	.004	.095 **	-.036	-.089 **	-.011	.043	-.012
25	Latino	-.030	-.053	.070	.015	-.012	-.014	.020	-.037	.066 *	-.060 +
26	Other	-.007	-.029	.030	-.023	-.003	-.065 *	-.023	.014	.015	-.156 ***
27	Parental Income	.020	.013	-.029	-.011	-.007	.282 ***	.186 ***	.161 ***	.102 **	.168 ***
28	Parental Education	.014	.000	-.010	-.019	.034	.320 ***	.188 ***	.169 ***	.141 ***	.183 ***

Source: Gaming & Civic Engagement Survey of Teens/Parents 2008

+ p<.1; * p<.05; ** p<.01; *** p<.001

Table 2: Bivariate Correlations Continued

		21		22		23		24		25		26		27		28	
	Child Civic Engagement																
1	Volunterred in my Community																
2	Done something to help raise money for charity																
3	Discuss politics during election season																
4	Stay informed on current events																
5	Taken part in peaceful protest or march																
6	Prosocial Gaming Behavior																
7	Antisocial Gaming Behavior																
8	Did Not Witness Aggressive Behavior Online																
9	Witnessed Aggressive Behavior Online, but not Intervention																
10	Witnessed Both Aggressive Behavior and Intervention Online																
11	Did Not Witness Racist Behavior Online																
12	Witnessed Racist Behavior Online, but not Intervention																
13	Witnessed Both Aggressive Behavior and Intervention Online																
14	Gaming Frequency																
15	Parental Involvement																
16	Parental Civic Engagement																
	Parent Civic Engagement																
17	Volunteered in my communtiy																
18	Done something to help raise money for charity																
19	Taken part in peaceful protest or march																
20	Stay informed on current events																
21	Child Age	1															
22	Sex	-.002		1													
23	White	.058	+	-.064	+	1											
24	Black	-.023		.063	+	-.605	***	1									
25	Latino	-.045		.042		-.553	***	-.097	**	1							
26	Other	-.020		-.012		-.476	***	-.084	*	.175	***	1					
27	Parental Income	.056		.043		.197	***	-.167	***	-.072	*	-.055		1			
28	Parental Education	.049		.004		.056	+	-.036		-.040		-.045		.450	***	1	

Source: Gaming & Civic Engagement Survey of Teens/Parents 2008

+ p<.1; * p<.05; ** p<.01; *** p<.001

Table 3: Logistic Regressions for all Child Civic Engagement Variables and Video Game Variables Only

	Model 1-- Volunteer				Model 2-- Charity				Model 3-- Discuss Politics				Model 4-- Stay Informed				Model 5-- Protest or March			
	b		OR	SE	b		OR	SE	b		OR	SE	b		OR	SE	b		OR	SE
Prosocial Gaming Behavior (1-21 scale; helping questions)	-.002		.998	.023	.082	***	1.085	.025	.091	***	1.096	.023	.019		1.020	.023	.098	***	1.103	.031
Antisocial Gaming Behavior (1-6 scale; cheating questions)	-.119	+	.888	.070	-.112		.894	.078	.030		1.031	.070	-.060		.942	.072	.143		1.154	.091
Did Witness Aggressive Behavior Online	-.217		.805	.239	.030		1.030	.247	.070		1.072	.236	-.356		.700	.237	.395		1.485	.313
Did Witness Aggressive Behavior and Intervention Online	-.223		.800	.197	.282		1.326	.210	-.092		.912	.195	-.136		.873	.194	.014		1.014	.273
Did Witness Racist Behavior Online	-.244		.784	.244	-.188		.829	.260	-.016		.984	.248	.857	***	2.356	.277	.088		1.092	.327
Did Witness Racist Behavior and Intervention Online	-.067		.935	.191	-.016		.985	.211	.100		1.105	.190	.159		1.172	.188	.024		1.025	.260
Gaming Frequency	-.073		.930	.052	-.059		.943	.055	-.082		.921	.051	-.037		.964	.051	-.090		.914	.070
Intercept	1.746	***		.317	.813	*		.330	-1.440	***		.310	.923	**		.310	-3.040	***		.432

Source: Gaming & Civic Engagement Survey of Teens/Parents 2008

+ p<.1; * p<.05; ** p<.01; *** p<.001

Table 4: Logistic Regressions for all Child Civic Engagement Variables and Parental and Demographic Variables Only

	Model 1-- Volunteer				Model 2-- Charity				Model 3-- Discuss Politics				Model 4-- Stay Informed				Model 5-- Protest or March			
	b		OR	SE	b		OR	SE	b		OR	SE	b		OR	SE	b		OR	SE
Parental Involvement (0-15 scale)	-.021		.980	.023	-.005		.995	.024	-.017		.984	.021	-.020		.980	.024	-.034		.967	.028
Parent Civic Engagement (1-8 scale)									.057		1.058	.052								
Volunteered in my communtiy	.698	***	2.009	.180																
Done something to help raise money for charity					.688	***	1.990	.198												
Taken part in peaceful protest or march																	1.182	***	3.261	.275
Stay informed on current events													.912	***	2.490	.247				
Child Age	.072		1.075	.048	-.016		.984	.050	.067		1.070	.047	.210	***	1.233	.049	-.030		.970	.065
Sex	-.215		.807	.164	-.194		.824	.175	.050		1.052	.161	-.135		.874	.168	-.135		.874	.223
Parent Education (1-7 scale)	.038	+	1.039	.059	.017		1.017	.063	-.003		.997	.059	.135	*	1.145	.060	.083		1.087	.082
Parent Income (1-8 scale)	.083		1.086	.044	-.041		.960	.048	-.006		.994	.045	.043		1.044	.045	-.148	*	.862	.059
Intercept	-1.055			.835	1.113			.880	-1.873	*		.825	-3.610	***		.874	-.743			1.109

Source: Gaming & Civic Engagement Survey of Teens/Parents 2008

+ p<.1; * p<.05; ** p<.01; *** p<.001

Table 5: Logistic Regressions for all Child Civic Engagement Variables with Video Game, Parental, and Demographic Variables

	Model 1-- Volunteer				Model 2-- Charity				Model 3-- Discuss Politics				Model 4-- Stay Informed				Model 5-- Protest or March			
	b		OR	SE	b		OR	SE	b		OR	SE	b		OR	SE	b		OR	SE
Prosocial Gaming Behavior (1-21 scale; helping questions)	.021		1.021	.025	.100	***	1.105	.028	.097	***	1.102	.025	.027		1.027	.026	.104	***	1.110	.034
Antisocial Gaming Behavior (1-6 scale; cheating questions)	-.097		.907	.077	-.074		.928	.084	.086		1.090	.076	-.009		.991	.081	.138		1.147	.101
Did Witness Aggressive Behavior Online	-.166		.847	.259	.135		1.145	.267	.075		1.078	.253	-.470	+	.625	.265	.339		1.403	.351
Did Witness Aggressive Behavior and Intervention Online	-.281		.755	.214	.316		1.371	.225	-.157		.855	.208	-.196		.822	.215	.069		1.071	.297
Did Witness Racist Behavior Online	-.264		.768	.266	-.366		.693	.277	-.165		.848	.270	.712	*	2.039	.306	.095		1.099	.370
Did Witness Racist Behavior and Intervention Online	-.128		.880	.204	-.112		.894	.223	-.032		.968	.201	.060		1.061	.206	.125		1.133	.282
Gaming Frequency	-.010		.990	.059	-.100		.905	.063	-.043		.958	.058	-.029		.972	.060	-.109		.897	.080
Parental Involvement (0-15 scale)	-.014		.986	.024	-.009		.991	.025	-.023		.978	.022	-.018		.982	.025	-.047		.954	.029
Parent Civic Engagement (1-8 scale)									.071		1.074	.053								
Volunteered in my communtiy	.709	***	2.031	.184																
Done something to help raise money for charity					.726	***	2.067	.202												
Taken part in peaceful protest or march																	1.222	***	3.395	.289
Stay informed on current events													.932	***	2.539	.255				
Child Age	.084	+	1.087	.049	-.017		.983	.053	.080	+	1.083	.049	.209	***	1.233	.051	-.039		.962	.068
Sex	-.100		.905	.178	-.181		.834	.191	-.043		.958	.175	-.125		.883	.183	-.317		.728	.245
Black	-.142		.868	.265	-.005		.995	.300	-.007		.993	.270	.009		1.009	.280	.668	*	1.950	.318
Latino	-.322		.724	.290	-.693	*	.500	.291	-.180		.836	.295	.103		1.108	.309	.174		1.190	.384
Other	.738	*	2.091	.376	.181		1.198	.362	.280		1.324	.316	.152		1.165	.350	.118		1.125	.444
Parent Education (1-7 scale)	.045		1.046	.060	.026		1.027	.064	.007		1.007	.060	.139	*	1.150	.061	.107		1.113	.085
Parent Income (1-8 scale)	.074		1.076	.046	-.034		.966	.051	.016		1.016	.046	.046		1.047	.047	-.090		.914	.062
Intercept	-.994			.942	.711			1.005	-3.151	***		.934	-3.741	***		.981	-2.115	+		1.247
Source: Gaming & Civic Engagement Survey of Teens/Parents 2008																				
+ p<.1; * p<.05; ** p<.01; *** p<.001																				

Table 6: OLS Regression Predicting Prosocial Gaming Behavior

	b		SE	
Gaming Frequency	.469	***	.085	
Child Civic Engagement (1-5 scale)	.324	***	.057	
Parent Civic Engagement (1-8 scale)	-.173	*	.080	
Parent Involvement (0-15 scale)	.064	+	.034	
Child Age	-.095		.072	
Sex	.790	**	.255	
Black	.904	*	.404	
Latino	.816	+	.436	
Other	-.449		.485	
Parent Education	-.096		.090	
Parent Income	-.169	*	.069	
Intercept	8.934	***	1.322	
R-squared	.140			
Source: Gaming & Civic Engagement Survey of Teens/Parents 2008				
+ p<.1; * p<.05; ** p<.01; *** p<.001				

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