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Do Older Adults Hate Video Games until they Play them? A Proof-of-Concept Study

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Abstract The issue of negative video game influences on youth remains contentious in public debate, the scholarly community and among policy makers. Recent research has indicated that negative attitudes toward video games are, in part, generational in nature with older adults more inclined to endorse negative beliefs about video games. The current mixed design study examined the impact of exposure to games on beliefs about video games in a small ($n = 34$) sample of older adults. Results indicated that older adults were more concerned about video games as an abstract concept but when exposed to a particular video game, even an M-rated violent game, expressed fewer concerns about that specific video game. Results support the hypothesis that negative attitudes toward video games exists mainly in the abstract and do not survive direct exposure to individual games. Further, older adults were not uniform in their condemnation of video games with older adults having varying opinions about the harmfulness of video games. Related to specific concerns, older adults tended to worry more about issues such as addiction than they did violent content.

Keywords Older adults · Video games · Violence · Addiction

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Introduction

Video games have become a cultural staple of youth media since home consoles became popular in the 1980s. According to industry statistics, (e.g. ESA 2015), video games continue to increase in popularity with 155 million Americans playing video games for at least three hours a week in 2015. But despite the entertainment value that this medium brings, it also brings with it a storm of controversy particularly from the distribution of violent video games and debates regarding their perceived influence on minors. This controversy has become enmeshed with scholarly debates about increased aggressive behaviour (e.g. Anderson et al. 2010; Ferguson and Kilburn 2010). This controversy continued when, in 2015, the American Psychological Association announced their new policy statement concluding that video games are linked to the development of aggressive behaviors. This policy statement prompted criticisms that the APA had included individuals with conflicts-of-interest onto their policy task force and failed to consider many disconfirmatory studies (Wofford 2015). Overall academic opinion on the potential effects has not reached a consensus, with scholars still debating the issues (Ferguson and Konijn 2015; Quandt et al. 2015).

One issue that has been raised in this debate regards generational differences in opinions about video games. For instance, in 2013, the Harris polling group found that American respondents were split on the issue of whether violent video games contributed to violence in society. Intriguingly, the split appeared to occur along generational lines with older adults and those unfamiliar with video games most inclined to endorse negative beliefs about their influences. The current study is intended to explore these issues further, to examine the degree to which unfamiliarity with video games may be

related to older adults' opinions of their harmfulness. This is important to understand further given the possible role of media unfamiliarity in promoting media based moral panics[1] (Bowman 2016).

Do Older People Play Video Games and What Do they Think of them?

Although video game playing is, overall, becoming increasingly common as a hobby, older generations tend to have less experience playing video games (Przybylski 2014). According to the ESA the average age of gamers is 35 years old, suggesting that games are not merely the province of youth and young adults. However, prevalence figures for game playing among older adults (50+) specifically are not widely available. The 2013 Harris poll, however, revealed generational gaps in video game knowledge. Although 51 % of younger adults (18–35) were knowledgeable about the Entertainment Software Ratings Board (ESRB) ratings of video games in the US, only 12 % of adults over the age of 67 were familiar with the ESRB. These data provide some clue regarding a generational difference in exposure to commercial video games.

These generational divides appear to have some relationship with attitudes towards video games. For example, Przybylski (2014) showed those who never or almost never played electronic games were nearly twice as likely to report endorsing beliefs that video game violence is associated with societal violence. Older Americans were between four and six times more likely to believe that electronic games contributed to human aggression compared to younger adults. These results by Przybylski appear to largely mirror those of the Harris poll of 2013. Negative attitudes and preconceived notions about video games are by no means limited to the United States. A study from New Zealand (Schott and van Vught 2013) sought to investigate parent's preconceived perceptions of violent video games (specifically Grand Theft Auto IV) and whether these perceptions would change after playing the game. The researchers found that the game was most familiar to parents because of the controversy it has sparked and their preconceived notions were therefore highly negative. However, the experience of actually playing the game prompted "a radical re-evaluation" (Schott and van Vught 2013, n.p.) of the game, which they found to be much more enjoyable to play than anticipated.

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[1] A moral panic refers to a social phenomenon in which some form of "folk devil" (Cohen 1972) is blamed for a perceived social problem, real or imagined. Moral panics allow society to focus anger on a vilified object, group or phenomenon perceived as reflecting declining morality. Many moral panics focus on supposed decadence, corruption or declining moral values among youth, and the involvement of moral panic in scholarly claims of alleged media effects has been well documented (Bowman 2016, Ferguson 2013).

But these beliefs are not limited to the general public. For instance, Ferguson (2015) focuses more upon the views of clinical professionals who are an influential source for expert opinions regarding video game and possible links to real world violence. The results of Ferguson's study with clinicians showed that negative views towards video games could be predicted by age, gender and negative attitudes towards youths. Thus, results regarding video game opinions are very similar among clinicians as for the general public, with the same age-related trends witnessed. Older generations tend not to have much experience playing video games (Przybylski 2014) and also usually have more negative views towards video games. Often a factor involved in development of beliefs in the links between video games and real world violence is the negative attitudes that older adults can have of the young and of new media (Ferguson 2015).

Are Older Adults Afraid of Games in the Abstract?

This relationship between negative attitudes toward youth and negative attitudes toward games is intriguing. There is evidence that exposure both to youth and to games can reduce stress among older adults. Chua et al. (2013) found that older adult intergroup anxiety toward youth was reduced after an interaction between young and elderly participants. Interestingly, playing video games was far more impactful on reducing anxiety towards members of different generations than the non-video game related activity. There was also a more significant positive change in general attitude towards the other age group when playing video games together, there was also a significant positive change in interpersonal attraction between the young and old participants who enjoyed playing video games together. This study provides some evidence that intergenerational fears can be reduced through shared game activities. But what of negative attitudes toward games themselves?

Only one prior study has sought to examine directly how exposure to a particular video game may influence attitudes about game effects. Ivory and Kalyanaraman (2009) using a sample of US college students found that beliefs in negative consequences from playing video games are exacerbated when people think of the effects on the general population and are less likely to believe in video games negatively affecting people they know personally. Ivory and Kalyanaraman also found support for censorship was decreased when participants were asked to think specific examples of violent video games, in comparison to just thinking of violent video games in general. These results suggest that people's negative attitudes toward video games in the abstract are diminished when considering specific people and specific games. However, these principles have not yet been examined among older adults who, arguably, are the demographic most responsible

for driving moral panic issues surrounding new media (Bowman 2016).

Aside from prior experience issues and generational divides, it is also possible that personality may influence perceptions of new media. In other realms, such as music preferences, both age and personality have been demonstrated to influence music preferences (Bonneville-Roussy et al. 2013). With this in mind, it would not be unreasonable to suggest that personality variables such as openness may be associated with fewer concerns about new media, although these propositions remain exploratory for the moment.

As can be seen from previous literature and surveys of the general public, much of the concern about video games does focus on the issue of violence. However, concerns are not limited to violence, but also encompass other areas such as the potential for addiction, influences on academics and potential mental health effects. As such, older adults may have wide-ranging concerns about the influences of video games.

The current study was designed to examine how contact with specific video games through direct play might influence attitudes toward video games among older adults. Specifically, the research question addressed was whether older adults would express concerns about violent video games in general, but find a specific M-rated (i.e. intended for audiences 17+, much like an R-rate movie) to be less concerning. With this in mind, the current study set out to study the following hypothesis.

H1)Older adults will express fewer negative attitudes about a specific violent video game they have just played, as compared to the abstract concept of violent video games in general. This, of course, is not meant to imply a change in opinion from pre to post assessment; rather it is meant to examine the hypothesis that negative views are held more strongly in the abstract, than in regards to specific game stimuli.

The current study examines the main hypothesis quantitatively, but also includes several qualitative questions about older adults' opinions of video games more generally. Thus this study was designed as a mixed-methods study.

Methods

Participants

Participants in the current study were all older adults aged 52–93 ($M = 68.19$, $SD = 10.29$). Any age cut-off is arbitrary, although in our case we limited the sample to 50+ as individuals in this age category were unlikely to have been raised as children or adolescence during the era in which home console video games such as the Atari 2600 became popular. There were slightly more female ($n = 18$, 52.9 %) than male participants ($n = 16$, 47.1 %). Most participants (97.1 %) reported Caucasian ethnicity. The majority were married (61.8 %) with

smaller numbers of divorced (17.6 %), widowed (11.8 %) and never married (8.8 %) participants. By and large the sample were not gamers, with mean reported weekly hours of video game use being 1.03 h ($SD – 3.00$).

Materials

General Personality General "big-5" personality constructs were measured using items taken from the International Personality Item Pool (IPIP, Goldberg et al. 2006). Scales drawn from the IPIP have well established reliability and validity in the research literature, and are freely available. With the current sample, observed reliabilities were Agreeableness (internal consistency alpha = .62), Conscientiousness (alpha = .80), Extraversion (alpha = .77), Neuroticism (alpha = .76) and openness (alpha = .71). These items were included to examine the degree to which personality characteristics might be related to opinions about video games, although these analyses are exploratory in nature, not hypothesis driven. Despite the exploratory nature of this work, we were particularly interested in the degree to which some personality variables such as openness might be associated with potentially more positive attitudes toward games, or neuroticism associated with more negative attitudes.

Negative Video Game Attitudes Four items indicating negative beliefs about video games were developed from a scale employed by Quandt et al. (2015). All questions were in 4-point Likert scale format. These questions were interspersed among 5 unrelated distractor questions to help reduce demand characteristics. These questions related to the potential for video games to cause harm to minors through increased aggression, addiction or other behavioural problems. The pre-test version of the questions is presented in Table 1. The pre-test version of the questions asked about video games generally and demonstrated observed reliability of .87. At post-evaluation (after video game play) the wording of the questions was altered to ask participants about the potential for the specific game they had just played to cause behavioural problems among minors. Observed reliability for the post-assessment was .82.

Table 1 Survey means and standard deviations

Variable	Mean	Standard Deviation
Agreeableness	32.75	3.79
Conscientiousness	31.11	5.19
Extraversion	28.05	5.89
Neuroticism	18.05	4.43
Openness	30.80	4.88
Negative Attitudes (Pre)	10.91	2.59
Negative Attitudes (Post)	6.38	2.93

Qualitative Questions In addition to the survey based questions with closed answer choices, six open ended questions were also asked of all respondents. These six questions are included as Appendix A. These questions were asked as the final part of the procedure so that they did not interfere with the quantitative responses. These questions were included both to probe further into participants' phenomenological responses to the video game experience as well as to gain further insight into their opinions on this issue more generally.

Our process in assessing the qualitative responses was designed to be similar to that of Oswald et al. (2014). Qualitative responses were transcribed and then examined by two researchers (blinded to each other's observations) for evident themes in each of the question responses. The third researcher used these responses to identify common themes that appeared to emerge. Discrepancies were resolved through consensus. This allowed for the identification of 22 emergent themes across the 6 questions (questions ranged between 3 and 5 themes each). Two researchers (again blinded) then coded each individual participant response for each of the themes. These responses were examined for reliability using Krippendorf's formula. Of the 22 original themes, 6 were eliminated due to poor overall reliability. A further eight had low reliabilities but were retained (Krippendorf's between .47 and .68). In these cases one or both of the original raters were unsure how to interpret some responses. Ultimately these were resolved in the negative (the response was not endorsed). The remaining categories displayed Krippendorf's reliabilities above .70.

Video Games Participants were randomized to play either an M-rated violent (Tomb Raider 2013) or non-violent (FIFA 14) video game. These games were chosen in consultation with an expert in the area of carefully matching video games on variables other than violent content so that confounds are not introduced (e.g. Adachi and Willoughby 2011). Participants were allowed to play the games for a 45-min period. Because many older adults are unfamiliar with even the basic controls for movement in modern commercial videogames, we employed an unusual procedure to address this issue. Specifically, each older adult played the video game with a female undergraduate student sitting in to help and advise them with the controls. Although this situation introduces an obvious social context to the exposure, this was consistent across all conditions and deemed necessary on a practical level, lest frustration with controls dominate the experiment. This in line with previous research by Schott and van Vught (2013), who, in a similar research design, argue that in order to achieve a sufficient degree of play experience and progress within the games participants need assistance and help from an 'expert gamer'. Schott and van Vught (2013) argue that this introduces a collaborative element to the play experience, which, rather than being a problem, provides nuance to the

data in the form of discussion and commentary on the play experience.

Procedure This experiment was preregistered in advance and the preregistration can be found at: https://osf.io/e2cya/ Participants were recruited largely via outreach to the local community through announcements in community groups, churches and local newsletters. No incentive was offered for participation. This resulted in a smaller sample than had been desired with contingent overall low power for quantitative analyses. Thus, the current paper should be considered a "proof of concept" with obvious need for replication with bigger samples and greater power.

Participants who volunteered were assigned a time to come into the lab. They filled out the pre-test survey on video game attitudes. Then they played the video game with the assistant of an undergraduate helper as described above for a 45-min period. Then, they were administered the post-test surveys. Finally, the same research assistant assisted with the video game sessions asked the open-ended questions. Analysis of the open-ended questions is described above. Quantitative responses were analysed using SPSS.

Results

Analyses consisted of a 2 (time, pre-post) × 2 (game condition, violent v non-violent) mixed design, controlling for participants' prior game experience. This design allows for comparison of general opinions of games (pre-test) versus the specific game played (post-test), but also whether playing a violent versus non-violent game mattered in post-test ratings. The presence of a time effect, but not a condition effect would confirm H1, namely that exposure to specific games, even M-rated violent games, reduced older adults' negative attitudes toward the specific game. All survey means and standard deviations are reported in Table 1.

Results confirmed H1. A main effect for time was observed [$F(1, 29) = 53.34$, $p < .001$, $r = .80$, 95 % CI, .63, .90]. The interaction effect between group and time was not significant [$F(1, 29) = 0.11$, $p = .742$, $r = .06$, 95 % CI, −.28, .39], nor was the main effect for group. These results are displayed in Fig. 1.

To examine the relationship between personality variables and negative attitudes toward video game violence, OLS (ordinary least squares) regressions were run with both pre and post-test attitudes toward video game variables. Predictor variables included gender and time spent playing video games, as well as the Big-5 personality characteristics. This allowed us to examine the relationship between personality characteristics in concert while also controlling for gender and previous game experience. At pre-test female gender ($β = .476$, $p = .023$) and lower openness ($β = .433$, $p = .032$) were associated with greater negative attitudes toward video games.

Fig. 1 Game exposure and game condition influences on attitudes toward games
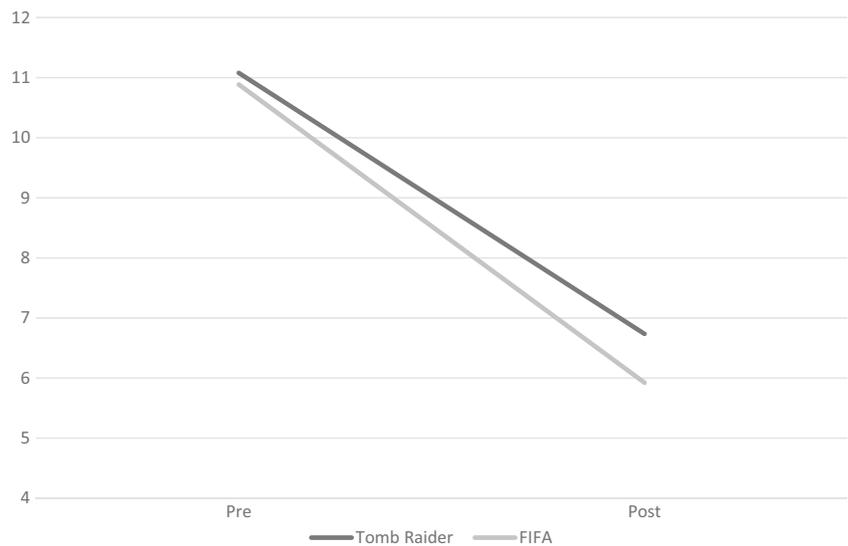
Note: Y-Axis units refer to negative beliefs about video games.

At post-test only lower agreeableness (β = .664, p = .025) was associated with greater negative attitudes toward video games.

Regarding older adults' opinions of games, first we considered their responses to the pre-test quantitative questions. These are presented in Table 2. Older adults were more split in their opinions about video games than had been expected. Although the numbers for negative opinions appear to be higher than for the general public (Przybylski 2014) or clinicians (Ferguson 2015) or media scholars (Quandt et al. 2015), older adults do not appear to be uniform in their negative attitudes toward video games. Older adults appeared, curiously, to be more worried about issues such as addiction (67.6 %) and possible mental health ramifications (58.8 %) than about violence effects (53.1 %).

Responses to the open-ended questions provided a bit more detail about themes on the minds of older adult participants. These are presented in Table 2. It is worth noting again that these open-ended questions allowed participants to speak directly to what was on their minds, rather than responding to certain specific issues (Table 3).

As indicated, a majority of older adults worried that video games might have some negative effects on players, although concerns appeared to be fairly nebulous and uncertain. Concerns generally ranged from wasted time and grades to addiction to possible aggression effects. In a sense, older adults were often disapproving of video games, but often for differing or unclear reasons. Older adults only rarely raised the

potential that violent games might have some positive influences (e.g. Granic et al. 2013).

Generally, older adults did not think the experience of playing the video game changed their opinions of video games more generally, although a minority believed their opinions had changed from before having played the game. Most players did find the experience fun, however.

Curiously, only a minority (41.2 %) of older adults specifically thought that the video game industry should reduce violent content. This may because a majority (52.9 %) were satisfied with the existing ESRB rating scale.

Overall, results from the open ended questions suggest that older adults' opinions of video games, even violent ones, are fairly diffuse and individualized. Negative opinions about video games and violent games more specifically may be more common than among the general population and other groups, but the stereotype of older adults as being universally opposed to violent games did not appear to be true with the current, albeit small sample.

Discussion

According to moral panic theory (Bowman 2016), the perceptions of older adults oftentimes drive discussions of and negative attitudes toward new media, and these perceptions can have an influence on scholarship regarding new media.

Table 2 Percentage "true" or "very true" responses to negative video game attitudes items

1) The overall impact of video games on society is negative	50 %
2) The effects of video games on youth violent assaults is a problem for society	53.1 %
3) Video games can have harmful mental health effects on kids and teens	58.8 %
4) The addiction effects of video games on kids and teens are a problem for society	67.6 %

Table 3 Percentage endorsement of major themes in response to open ended questions

Themes	Percent Raised
Question 1 themes:	
Games can have negative effects	64.7 %
Violent games are bad for kids but not adults (third person effect)	14.7 %
Games are a waste of time/Addictive	8.8 %
Can have positive effects on hand-eye coordination	2.9 %
Question 2 themes:	
Playing the video game brought no change in opinion about games	82.4 %
Playing the video game DID bring change in opinion about games	14.7 %
Question 3 themes:	
New media such as games is bigger concern than old media such a television	44.1 %
Agree that concerns about media are or were overblown	26.5 %
Kids don't know the risks to them.	8.8 %
Question 4 themes:	
The video game was fun	70.6 %
Understand why children may enjoy the game	2.9 %
Can have positive/negative effects	2.9 %
Question 5 themes:	
The industry should reduce violence in games	41.2 %
Increased awareness of ESRB/other controls/have critics play	26.5 %
Question 6 themes:	
ESRB rating system is good	52.9 %
Parents don't follow rating system	20.6 %

Despite this, the perceptions of older adults regarding new media have oftentimes been neglected as a subject of study. The current study attempted to address this issue. Results indicated that older adults tend to have negative opinions of video games in the abstract, but that their perceptions of games they have played, including M-rated violent games, are much less negative. The current sample, particularly regarding the quantitative analyses, was small in size. Thus we consider this to be a proof-of-concept rather than definitive evidence and would welcome further replication studies with larger samples.

In prior research Ivory and Kalyanaraman (2009) indicated that negative attitudes toward video games often occupy an abstract space. That is to say, people oftentimes seem to worry about "violent video games" as an abstract comment, but when considering the content of a specific game, worry much less about that specific game. We were able to replicate these basic findings by Ivory and Kalyanaraman with an older adult sample. Just as with younger adults, older adults appear to be more concerned about the abstract concept of "violent video game" or even just "video games" than they worried about a specific video game they actually played, even one with M-rated content. This supports the general notion that concerns about video games, at least in part, are driven by unfamiliarity with the medium. This is further consistent with data from the Harris (2013) and Przybylski (2014) suggesting a relationship between negative attitudes toward video games and generational issues and familiarity with the ESRB ratings systems.

Somewhat contrary to our expectations, however, opinions of older adults were not remotely universal. Although a majority of older adults in both qualitative and quantitative responses were concerned about some aspects of video games, more older adults appeared to be concerned about issues such as addiction and mental health outcomes (although recent research by Kovess-Masety et al. 2016, suggests such latter effects are minimal) than they worry about violent content. Only 53.1 % of older adults endorsed links between violent media and youth assaults in society. Although this number is higher than among the general public (Przybylski 2014), clinicians (Ferguson 2015) and scholars (Quandt et al. 2015), this number was still lower than we had expected. Overall, older adults appear to be split on the degree to which video games are a positive or negative overall facet of modern society.

In addition, related to personality features, we found that lower openness was related to increased negative attitudes about video games. Although this analysis was exploratory, it was in the direction hypothesized. However, at post-test, only lower agreeableness was associated with negative attitudes toward video games. Given that the video game experiment involved social interaction with the research assistant, it may be that less agreeable (i.e. social) individuals were less

likely to respond positively to the video game, potentially hardening, rather than softening their opinions in a social context.

Limitations and Future Directions

In the current study we tested whether exposure to a particular game would reduce participants' discomfort with the effects of that game on youth in comparison with overall concerns about video games. This hypothesis was supported. However, we note we did not test whether game exposure to a specific game reduced negative impressions of video games (or violent games) more generally. In qualitative responses, participants were sceptical that playing the specific game changed their opinions about video games more generally. However, we did not test this quantitatively.

The major limitation of our study is, of course, the small sample. In our case, we believe this was due to the unavailability of resources to compensate members of the community to drive to campus and participate in the research. This is a regrettable weakness. Obviously, small samples risk spurious results and Type II errors and thus we present our findings as a "proof of concept" certainly in need of replication with much bigger samples, which we heartily endorse. Further, the games used in this study cannot be considered exemplars of all violent or non-violent games. Thus, replication with other games would be welcome.

Regarding future directions for further study, first, it would obviously be excellent to see the current proof-of-concept results replicated with larger preregistered studies. Second, larger studies may wish to examine other variables that may influence older adults' acceptance of video games. For instance, it may be possible that older adults who have more positive opinions of youth, or who are closer to the youth in their families, may have most positive opinions about video games (Ferguson 2015). Variables such as gender, age cohort (particularly involving technology use cohorts), comfort with using technology, education level, and personality variables such as openness may influence older adults' willingness to either reconsider their views of new technology, or have more positive (and sceptical of negative effects) views of new technology a priori.

Concluding Thoughts

Understanding the origins and mechanisms behind people's thoughts about new media can help us to understand how society develops and reinforces opinions about new media. We do not believe these issues to be trivial as such societal opinions can drive issues such as political attention, regulation efforts, grant funding and newspaper coverage (Copenhaver 2015). Put simply, such issues can ultimately cause distortions to the scientific effort to study potential effects, resulting in inaccuracies and false statements. Although the current study was very small in size, we hope it offers evidence of a "proof of concept" that could be examined more closely in follow-up, larger studies. Often such smaller studies can suggest useful avenues for larger work. We believe that our small study is a tentative step toward understanding the sociology of media effects research itself and the extent to which it may be driven by social narratives and fears about media.

Appendix

Qualitative Questions

1) Before playing the video game, what were your thoughts about video game violence?
2) Did playing the game cause you to rethink your position on video game violence?
3) Do you remember whether, in your youth, some forms of media seemed to get picked on as causing problems in society? Did you agree with those concerns then? Does the issue of video games seem similar or different?
4) How did you feel about playing the video game? What did you like about it? What didn't you like about it?
5) Violent video games probably aren't going away. What could the video game industry do to reduce society's fears about violent video games?
6) Are you familiar with the ESRB ratings system for video games? (Explain if says no). Does knowing this ratings system exists to help parents make decisions for their families ease your concerns about violent video games? Why/why not?

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