The Video Game Controversy:

Aggression, Benefits, and Addiction

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Abstract

To answer the question “Are video games good or bad?,” three areas of video game research are looked at. First, support for the idea that violent video games increase aggression is explored followed by research contradicting the idea. Second, research concerning benefits of playing video games is explored. Third, research supporting the idea of video game addiction is explored followed by research contradicting the idea and cautioning against the addiction label. Following the exploration of research, the author provides recommendations taken from other scholarly articles in the case of individual concern and the possibility of negative effects of video game play.

The Video Game Controversy: Aggression, Benefits, and Addiction

Since their onset over 40 years ago, video games have become a ubiquitous form of entertainment, education, and sport. As with any medium, concern over the possible short- and long-term effects of video game playing arose. These concerns were compounded in the wake of school shootings such as those that occurred at Columbine in 1999 and Virginia Tech in 2007, leading to large amounts of research regarding video games and their various effects. Research continues today, seeking to answer the question, "Are video games good or bad?"

Scholars from various disciplines, including communication and psychology, have researched video games for their possible positive and negative effects. They may have influences based on player age or gender, game type, and amount of time played. Research in the realm of video games has focused on whether or not video game play increases aggression (Anderson et al., 2003; Anderson & Bushman, 2001; Bartholow & Anderson, 2002; Carnagey & Anderson, 2005; Norris, 2004; Shibuya, Sakamoto, Ihori & Yukawa, 2008); if there are any benefits to playing video games (Cherney, 2008; Ferguson, 2007; Gee, 2011; Olson, Kutner & Warner, 2008; Williams & Skoric, 2005); and whether or not players may become addicted to video games (Griffiths, 2010; King, Delfabbro & Zajac, 2011; Petry, 2011; Skoric, Teo & Neo, 2009; Van Rooij, Schoenmakers, Vermulst, Van Den Eijnden & Ven De Mheen, 2011; Wood, 2008). Each area has been explored for effects on the individual, from psychological and behavioral to how these impact other areas of life, such as socializing and responsibility.

Interest in video games and their effects extends beyond scholarly research into the realms of entertainment, education, and sport. The Entertainment Software Association reports that in 2011, 72% of American households played computer or video games (2012). Additionally, gameplay is on the rise for other audiences in this generally male-dominated media: 42% of all gamers are women, and game play for Americans over 50 has increased 9% from 1999 to 2011 (Entertainment Software Association, 2012). Many video game companies release their games to international markets, such as Blizzard Entertainment's *World of Warcraft* and Riot Games' *League of Legends* – both of these games are played

in international pro-gaming tournaments as part of the World Cyber Games (http://www.wcg.com/renew/index.asp).

As mentioned previously, controversy exists over whether video games are good or bad in general, but research has focused on 1) whether not video games increase aggression, 2) whether or not video games offer any benefits to playing, and 3) whether or not players can become addicted to video game playing. I will explore research in each area followed by recommendations from scholarly articles on how to counteract possible negative video game playing effects.

Aggression

The impetus to study the effects of violent video games was compounded by the Columbine shooting in 1999 where video games were blamed as one of the causes contributing to the tragedy. The approach to video game research has followed in the footsteps of television and movie research, particularly in the realm of violence and aggression. This is one of the core controversies over video games due to the conflicting research.

A number of studies support the idea that violent video games increases aggression. Anderson and Bushman (2001) developed the General Aggression Model (GAM) based on a number of previous research models, stating that "[t]he enactment of aggression is largely based on the learning, activation, and application of aggression-related knowledge structures stored in memory (e.g., scripts, schemas)" (p. 355). They performed a meta-analysis of research at the time using the GAM and concluded that exposure to violent video games was indeed "positively associated with heightened levels of aggression in young adults and children, in experimental and nonexperimental designs, and in males and females" (p. 358). They also found that aggressive cognition, which is an underlying factor in the development of aggressive personality, is also positively related to video game exposure along with aggressive affect and physiological arousal. Anderson and Bushman (2001) did note, however, that longitudinal research in the realm of video games was severely lacking.

Supportive studies have also focused on violent video game effects on a particular audience or the differences between them. Bartholow and Anderson (2002) looked at the potential sex differences in

violent video game exposure. Their findings supported the notion that young men are more likely to be affected by violent video games than young women. They also mention that women's tendency to employ more indirect forms of aggression (such as lying or ignoring) may translate into video game playing differently than men's tendency to employ direct forms of aggression (such as punching or tripping) (Bartholow & Anderson, 2002). They compared their study, which allowed players to punish "opponents" by using different intensity noise-blasts, to a similar study that allowed players to punish "opponents" by using different durations of noise-blasts. Between the two studies, men who played violent video games focused on intensity whereas women who played violent video games focused on duration (Bartholow & Anderson, 2002).

Norris (2004) chose to focus on women specifically by comparing women who played computer games to those who only used chat rooms. She noted that women who played computer games experienced less sexual harassment online compared to those who did not. This was also true of women who played games aimed at a more mature audience; more mature games also provided a more friendly environment compared to less mature games. Ultimately, Norris (2004) found that "[w]omen who played games, played them longer, or played games for more mature audiences were more aggressive. In particular, differences were found in levels of anger, physical aggression, and verbal aggression, but not in hostility" (p. 725).

Youth are assumed to be particular vulnerable to possible negative effects of violent video games. Anderson et al. (2003) summarized the existing knowledge regarding media violence effects on youth. They observed short- and long-term increases in violent behavior and aggression in children, adolescents, and young adults. Childhood exposure to violent video games led to these effects following individuals into adulthood even if they were no longer playing them. Additionally, individuals normally low in aggression are also affected by violent media in the short and long term. Short-term effects are due to "…activating (priming) aggressive thoughts, increasing physiological arousal, and triggering an automatic tendency to imitate observed behaviors (especially among children)" (Anderson et al., 2003, p. 104). Long-term exposure to media violence "…increases aggression and violence by creating long-lasting (and

automatically accessible) aggressive scripts and interpretational schemas, and aggression-supporting beliefs and attitudes about appropriate social behavior" (Anderson et al., 2003, p. 104). These effects also stem from the desensitization of negative emotional responses. To help combat these effects, Anderson et al. (2003) stress the vital role of parents, who should supervise and influence their children's activities, exposure, and interpretation of media violence "…in a healthy (or less harmful) way" (p. 104).

One reason that video games are seen as increasing violence is their rewarding of violence and the competition when playing against others. Carnagey and Anderson (2005) looked at both of these factors, finding that rewarding video game violence increases aggressive affect, cognition, and behavior when compared to games that punished violence or offered no violence. Carnagey and Anderson's (2005) study also demonstrated that the aggression increase from violent video games isn't the sole result of the competitiveness of them, though "…this does not mean that competition never increases aggressive affect, cognition, or behavior" (p. 887).

There are a number of studies contradicting the idea that violent video games increase aggression. Shibuya et al.'s (2008) study in Japan addressed the lack of longitudinal studies in violent video game research and presented some contradictory findings. They noted that "…playing violent video games increases hostility for boys but not for girls, partly because boys are more likely to be exposed to violent video games than girls are" (Shibuya et al., 2008, p. 536). However, they also identified factors that decreased aggression. For girls, the extent of violence and role-playing decreased aggression; this was attributed to the positive social factors of playing with peers and prosocial features such as naming and building characters. Humor was also found "…to build the antiviolence norm for boys and girls" (Shibuya et al., 2008, p.537) due to distraction from violence or promoting the interpretation of violence as fictional or unrealistic.

Another longitudinal study that contradicted the aggression-increase beliefs was Williams and Skoric's (2005). They observed researchers' tendencies to focus on "…very young participants in experiments. While exploring issues of children and game violence remains important, we are puzzled that the research community has rejected studying all ages even while the average age of game players

steadily increases for both home consoles and online play" (Williams & Skoric, 2005, p. 219). Looking at the research gaps in method and generalizability, they conducted a month-long study to see if game play resulted in beliefs more accepting of violent behaviors and in more aggressive social interactions. Ultimately, they found "…no strong effects associated with aggression caused by this violent game [*Asheron's Call 2*]" (Williams & Skoric, 2005, p. 230). Their study of one month provides findings that may be applied beyond a one or two hour exposure period, noting that "[i]f the effects of some games wear out after an hour, and disappear (or remain very small) after a month, the duration of strong effects becomes suspect" (Williams & Skoric, 2005, p. 230).

Overall, there has been no consensus on whether or not video games cause an increase in aggression in any particular age group. Additional research needs to be performed in this area to reach a possible consensus.

Benefits

Ferguson (2007) not only challenged the aggression-increase belief, but also presented violent video games as having possible beneficial effects. Performing a meta-analysis of video game research, Ferguson (2007) notes publication bias and "…the use of unstandardized measures of aggression to inflate the relationship between video game violence and aggression" (p. 310). Correcting for this bias, Ferguson (2007) found that "…studies of video game violence provided no support for the hypothesis that violent video game playing is associated with higher aggression" (p. 309). Ferguson (2007) argues for a different approach to the video game debate, stating that research has indicated an association between violent video game play and increased visuospatial cognition.

In addition to the increased visuospatial cognition mentioned by Ferguson (2007), a number of studies have shown positive effects. Olson et al. (2008) conducted focus groups with boys ages 12 to 14 because boys have a higher likelihood of playing video games than girls, and they have a higher likelihood of playing games with friends. They found that boys use video game play for a number of positive reasons, such as expressing fantasies of power and glory, exploration of environments, and as an emotional regulatory tool for coping with anger and stress. Olson et al. (2008) also note the highly social

function of games "…that allow boys to compete with and/or work cooperatively with peers. Boys gain status among peers by owning or mastering these popular games. This supports the idea that video game play with violent content may serve a function similar to rough-and-tumble play for young adolescent boys" (p. 69). Additionally, Olson et al. (2008) observed positive effects for different types of games. Realistic sports games influenced boys' amount and variety of physical activity. The social factor of games may "…help socially awkward children gain acceptance and self-esteem" (Olson et al., 2008, p.70). Lastly, roleplaying games provided motivation and encouragement for creative problem solving.

Cherney's (2008) study examined video game play effects on mental rotation performance and how individual differences may affect performance for men and women. Results demonstrated that "even a very brief practice (4 h) in computer game play does improve performance on mental rotation measures. In general, practice with computer games improved both men's and women's performance, but women's gains were significantly greater than men's (Cherney, 2008, p. 783). Cherney (2008) notes that, "[a]lthough women's gains were larger than men's, their posttest scores did not reach the level of men's scores. Thus, men benefitted from practice as well" (p. 783). A playtime of ten hours was identified to eliminate these gender differences in spatial attention and decreased the gender difference in mental rotation, however, playing an action game (versus a non-action game) was necessary for this elimination (Cherney, 2008).

Gee (2011) approaches video games slightly differently, instead looking at their narrative qualities and how they may contribute to human sense making and perspective taking. Gee (2011) proposes "…that narrative video games allow a form of player storytelling at the intersection of the game's grand narrative and reflective action in a virtual world" (p. 353). These narratives involve decision-making and weighing possible future consequences of player actions. Gee (2011) views players as a hybrid creature because they place themselves into the mindset of their characters while still maintaining their real life identities. Playing through a game mixes the player's overcoming of the game's challenges with "…how the real person embodied in the virtual character in mind and movement to create an identity story within the narrative and virtual world of the game" (p. 355). Gee (2011) further proposes

"…that such games have the potential to create empathy for other people's situations and perspectives in life" (p. 353). Using his experience playing *SWAT4* as an example, Gee (2011) discusses his taking his character's persona where he "…had to decide, act, and suffer the consequences of the sorts of stories, rules, and world SWAT team members inhabit. I had to play by their rules and values…, to play with the cards they were handed, and suffer the consequences of my decisions" (p. 356). From this, Gee (2011) gained respect for SWAT members, a desire to never perform their job in real life, and observations about himself. This is the potential that Gee (2011) is on the lookout for in the future.

Overall, a number of studies have identified possible benefits of video gaming; these include increased visuospatial cognition, emotional regulation, mental rotation skills, and the narrative possibilities of games. Further research needs to be conducted on these and other benefits.

Addiction

While aggression and benefits research continues, the latest debate regarding video games focuses on addiction. This debate is particularly new and researchers are still attempting to standardize measurements of possible video game addiction. King, et al. (2011) propose their Problem Video Game Playing Test (PVGT). To test this proposed measurement tool, they surveyed students from South Australia and "…video game players from various video game retail outlets, Internet cafes, and LAN gaming businesses" (p. 80). They surveyed participants on game playing frequency as well as presenting them with a version of the DSM-IV diagnostic criteria for Pathological Gambling adapted for video game play. Based on their results, King et al. (2011) present the PVGT as a "new instrument for measuring problem video game playing. The test appears to be clear and readable for adolescents, shows high internal consistency and moderate convergent validity, and the measure corresponds well with the components model of addiction" (p. 85).

Adding to the debate over video game addiction is the tendency for gamers to play for long periods of time (known as heavy gamers or power gamers). Van Rooij et al. (2011) surveyed Dutch students once a year in 2008 and 2009 for internet addiction, which they considered "…an appropriate measure of online gaming addiction severity" (p. 206) based on their previous work that found a

relationship between the two. They identified a group of addicted heavy online gamers and another group of heavy but non-addicted online gamers (Van Rooij et al., 2011). The addicted gamers reported higher scores for depressive mood, loneliness, social anxiety, and negative self-esteem, however, these were non-significant except that addicted gamers were found to be "more depressed than the non-addicted heavy gamers" (van Rooij et. al, 2011, p. 210). Per these results, van Rooij et.al (2011) call for further research concerning "the relationship between online video game use, online video game addiction, and psychosocial health" (p. 210).

Another factor in the addiction debate is the difference between addiction and engagement in video gaming. Skoric, Teo, and Neo (2009) surveyed elementary school students in Singapore. They were measured on the amount of time spent playing video games, their addiction tendencies, their engagement tendencies, and their grades in school. Skoric et al. (2009) found that "the amount of time spent playing video games did not show any significant association with any of the three subject test scores" (pp. 569-570). They did find, however, "a significant positive association between the amount of time spent playing video games on the weekdays and English test scores" (Skoric et. al, 2009, p. 570), possibly reflecting that children who play more video games on the weekend have a better command of the English language, thus enabling them to navigate through their games. At the same time, their results also supported a negative association between video game addiction and academic performance while "children who are simply highly engaged with video games are unlikely to develop negative consequences" (Skoric et. al, 2009, p. 570). Skoric et al. (2009) call for additional research examining the same relationships in teenage and college students as well as the relationship between engagement, addiction, and "other forms of negative life outcomes, such as maladaptive psychosocial functioning" (p. 570).

Much as Ferguson (2007) noted bias and inflation due to unstandardized measures in video game violence research, Wood (2008) discusses the criteria used to identify players as addicts of video game play. Adapted versions of criteria for substance abuse and pathological gaming from the Diagnostic and Statistical Manual of Mental Disorders (such as in King et al.'s (2011) future study), however, not all of

the criteria may be valid considering they refer to aspects of "normal" play and engagement rather than addiction. Core criteria of addiction include conflict, withdrawal symptoms, relapse and reinstatement, and salience while peripheral criteria include cognitive salience, tolerance, and euphoria. Due to the use of questionnaires that include "…peripheral criteria to identify video game 'addiction'", there has been a "…significant overestimation of the prevalence [of video game addiction]" (Wood, 2008, p. 170). Wood (2008) also notes qualitative differences between gambling and video gaming, which may pose validity problems in using adapted gambling addiction criteria. He looks at four cases of different age and sex that have looked at video game addiction followed by commentaries as "…examples of how this popular view of video game 'addiction' can both define and perpetuate a misunderstanding of what constitutes game 'addiction'" (Wood, 2008, p. 173). These stories represent "four important factors that need to be considered in the current debate about video game 'addiction'" (Wood, 2008, p. 176). These factors are as follows:

- That some people are labeled as "addicts" by concerned parents, partners or others, when they have no problems with their game playing behavior.
- That some people who have other underlying problems may choose to play games to avoid dealing with those problems.
- That some people who are concerned about their own behaviour because of either 1 or 2 above end up labeling themselves as video game "addicts."
- That some people are not very good at managing how much time they spend playing video games. (Wood, 2008, p. 177)

While Wood (2008) recognizes that there is a small number of people that do play games excessively with negative consequences for themselves and/or others around them, he notes that evidence suggests these players likely have "other underlying problems, and/or have inadequate time management skills. Excessive video game playing is therefore likely to be a symptom and not the cause of their problem" (p. 178). Wood (2008) cautions on labeling people as addicted to video games as a way of addressing their

problems instead of focusing on understanding "the nature of their own game playing, and the gaming behaviour of others" (p. 178).

Following the cautions given by Wood (2008), Petry (2011) responds to Van Rooij et al.'s (2011) study, cautioning that gaming and internet addiction "are currently not classified as psychiatric disorders in the Diagnostic and Statistic Manual for Mental Disorders (DSM), 4th revision, although discussion are under way regarding the existence of such a putative disorder [2]" (p. 213). She discusses some of the shortcomings of current addiction research, such as the inconsistent methodologies, the lack of variety in age respondents (most studies are school- or university-based surveys), and the convenience sampling of non-school-based surveys. Petry (2011) also notes the lack of association between gaming addiction and poor psychosocial functioning in van Rooij et al.'s (2011) study, indicating that "perhaps this may not be a true psychiatric disorder, at least not as defined in that study" (p. 213). She calls for additional scientific research regarding gaming and internet addictions, including an established consensus on behavioral conditions, familial and genetic patterns of the conditions, and associations with other psychiatric disorders. Ultimately, Petry (2011) cautions readers to consider the past:

> The internet gaming 'addiction' of the early 21st century may be reminiscent of video arcade and television 'addiction' from the previous generation. If we draw the threshold too low, all excessive behavior patterns, including eating too much chocolate and working too much, may become psychiatric disorders, minimizing the experiences of, and ultimately limiting treatment availability and coverage for, individuals with true psychiatric disorders. (p. 213)

Similar to video game aggression effects, there is no consensus concerning video game addiction. This is still a relatively new area of research and debate. Additional research and a standardization of measurement tools must be conducted and established.

Recommendations

Based on focus group and survey results, Radford University students, faculty, and staff did not consider negative video game effects a prevalent health concern. While there is no

consensus concerning video games increasing aggression or video game addiction, people may still be concerned for themselves or other individuals in their lives. Per these concerns, and the possibility that a person may be negatively affected by video games (particularly video game addiction, which has similar symptoms and treatment recommendations as other forms of addiction), I will offer some recommendations taken from another scholarly article.

Griffiths (2010) outlines recommendations from educational psychologists to parents concerning their child or adolescent's video gaming behavior. Many of these recommendations are adaptable for different age groups and have been rephrased to reflect this adaptation for college students. Griffiths' (2010, p. 38) advice is as follows:

- [Encourage students] to play video games as part of a group rather than as a solitary activity. This will lead to [students] talking and working together. Also, remind [students] that many online games are based on social activity and working together. Research has consistently shown that the main reason for playing online games is for the social element (Griffiths et al., 2003, 2004b; Cole & Griffiths, 2007)
- [Encourage students] to set time limits on their…playing time. It is fine for [students] to play for a couple of hours after they have done their homework or their chores. Early research showed that those children who played video games for a couple of hours a day were more likely than those children who did not play video games at all to (a) have a wider circle of friends, (b) engage in physical activities, and (c) do their homework (Phillips et al., 1995).
- [Encourage students] to follow the recommendations by the game manufacturers and/ or the service providers (for example, sit at least two feet from the screen, play games in a well-lit room, never have the screen at maximum brightness, and never engage in gaming when feeling tired).
- Finally, if all else fails, advise [students] to temporarily [cease] gaming and then allow [themselves] to play again on a part-time basis when appropriate.

Conclusion

Ultimately, there is no unanimous answer to whether video games are good or bad. There is no consensus on whether or not video games increase aggression, and there is no consensus on whether or not players can become addicted to video games, though some benefits to video game playing have been identified. Video game research is a relatively young field, and additional research must be conducted in all of these areas. Individuals may be concerned about their own or another's video game playing, and scholarly recommendations have been provided to address these concerns. The only consensus that may apply to this field currently is that video games and video game research will continue to grow along with those who play them.

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