

Effects of Video Games: Positive or Negative? The Necessity of a More Comprehensive and Objective Understanding of Them

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Abstract. Presently, there is an urgent need for society to confront the negative impacts of video games, particularly violent ones. However, as video game is an emerging media, research in this field is still insufficient and the results of different experiments vary greatly. This paper will provide a review on the topic of “Do all video games always help increase the probability that players will show negative behaviors in the real world” as a synthesis of scholarly, will then systematically select and synthesize experiments and literature with diverse hypotheses, and ultimately integrates theoretical frameworks such as Cultivation Theory and Social Learning Theory to draw the conclusion that violent video games increase the possibility of players showing negative behaviors such as aggressive behavior under the influence of factors like playing frequency and individual differences. Besides, they may also help players release real-life stress in certain situations. This paper argues that society should abandon the prejudice against violent video games and instead engage with them constructively, confronting the underlying real issues reflected through the games.

Keywords: Video game, cultivation, social learning, aggressive behaviour

1. Introduction

This paper will focus on the topic that has rapidly attracted a lot of attention in the past two decades: whether video games, especially violent video games, have much more negative impacts or not on players' real lives? And the number of related studies has also been increasing. Although a considerable number of studies tend to assume that the harm of violent video games is more obvious, there are significant differences in the results of former experiments: some of them have shown that currently, the result can't support a specific relationship between violent video game playing and aggressive behaviour [1]. However, a small number of studies have strived to address these challenges and have tentatively concluded that the estimated impact of violent video games on aggressive behavior is even "larger than the effect of condom use on reduced HIV risk" [2].

Besides, This paper aims to explore the differences in the impact of different kinds of video games on different players under different conditions. Specifically, based on Cultivation Theory and Social Learning Theory, this paper summarizes previous research and explore whether there are methods to enable video games to provide more benefits than drawbacks to people's real life while

controlling for various variables through former experiments. The ultimate objective of this paper is to enhance public awareness of the actual effects of video games, facilitate the elimination of prejudice against video games (particularly violent ones), and derive solutions that are as objective as possible.

2. The impact of video games on players' real life

2.1. Violent video games

In recent years, in an increasing number of shooting incidents, some shooting killers will prefer to admit that enjoy playing violent video games, which probably make the public now seems to have an opinion bias towards violent video game that does more harm than good.

As a result of this phenomena, when asked about the impacts of violent video games, the potential to increase real-world aggressive behavior often comes to mind initially. Actually, the subconscious may be correct. Bruce D. Bartholow and Craig A. Anderson have confirmed this with rigorous experiments they designed themselves. The findings confirmed that playing violent video games increases the likelihood of exhibiting aggressive behavior [3]. In the past decade, with more thoughtful consideration of relevant experimental designs, this topic gets an accepted result: violent video games probably increase the possibility of triggering aggressive behavior in some situations. On top of that, in another experiment, Anderson and Karen E. Dill found that long-term exposure to video games may let players be desensitizing and affect their academic achievement severely [4].

Nevertheless, a small body of research has indicated that violent video games may offer certain benefits to players. For example, they may be associated with increasing visuospatial cognition. Besides, this paper points out that violent video games may moderate existing violence predilections, which haven't been proven now [5].

2.2. Non-violent video games

This is a type of video games that researchers have almost forgotten, as research in recent decades seems to focus on aggressive behavior and violent video games. Beyond the potential risks of addiction and other related issues, non-violent video games are generally regarded as harmless or even beneficial.

Their negative impacts do not require much explanation. The benefits are that it can relax oneself, relieve stress, etc. These are not just intuition, but can be found in many studies as evidence, such as the use of it as a "tool" or "medium" to disseminate desired content such as health knowledge to players [6]; Alternatively, social games can meet people's interactive needs [7].

3. Reasons and analyses of the effects

Based on the former experiments, this paper will analyze the reasons for these effects from the following four points.

3.1. Cultivation: interaction and simulated environments

The Cultivation Theory, proposed by George Gerbner in 1969. In its most basic form, it suggests that exposure to television viewing over time "cultivates" viewers' perception of reality. The theory mainly apply to more traditional media such as television, however, is it equally applicable to emerging media such as video games? To address this question and illuminate the mechanisms

underlying the effects outlined in the preceding section, this study draws on a relevant experiment conducted by Marko M. Skoric's research team.

They designed a long-term experimental test of first- and second-order effects based on Two types of cultivation judgments [8]. Unlike previous field experiments, this experiment chose a laboratory environment to better overcome the influence of environmental factors and improve the level of control variables. Furthermore, they distributed relevant test questionnaires to a university in Singapore in advance to screen participants.

The first type refers to judgments about the perceptions of probability of situations and prevalence of issues, while the second type are judgments that indicating people's belief and attitudes.

Subsequently, participants were divided into an experimental group and a control group, with the former playing Grand Theft Auto IV as required for three weeks and the latter not playing game. Three weeks later, data was collected using a questionnaire method. The results revealed a significant difference between the two core indicators, providing empirical support for the applicability of the first-order cultivation effect to violent video games. However, in the subsequent second-order effect evaluation, the control group were surprisingly found to have an attitude opposite to initial expectation [8]. However, authors also point out that three weeks was still insufficient to collect more objective data.

This experiment strongly proves a viewpoint that the cultivation theory partially applies to the emerging media: video games. Similarly, it also proves the viewpoint of this paper: long-term gaming can affect people's cognition of society and even develop in a negative way, but this does not mean that games can only lead players to the virtual reality environment they construct like television.

In other words, most players recognize that the games they are playing are not reflective of reality, whereas television presents content purported to depict real-world events. Through Cultivation theory, games may lead players' cognition to a wrong way in some aspects, but due to the characteristic of video game mentioned before, it may show the counter-cultivation mechanism, and this may also be the key to the door of finding ways to reduce harms of video games especially the violent one.

3.2. Social learning

Social learning may also be an important factor contributing to these effects, especially for the aggressive behavior part. Given the scarcity of direct empirical studies examining the intersection of Social Learning Theory and violent video games, this paper draws on a relevant study that integrates Social Learning Theory to support the aforementioned hypothesis.

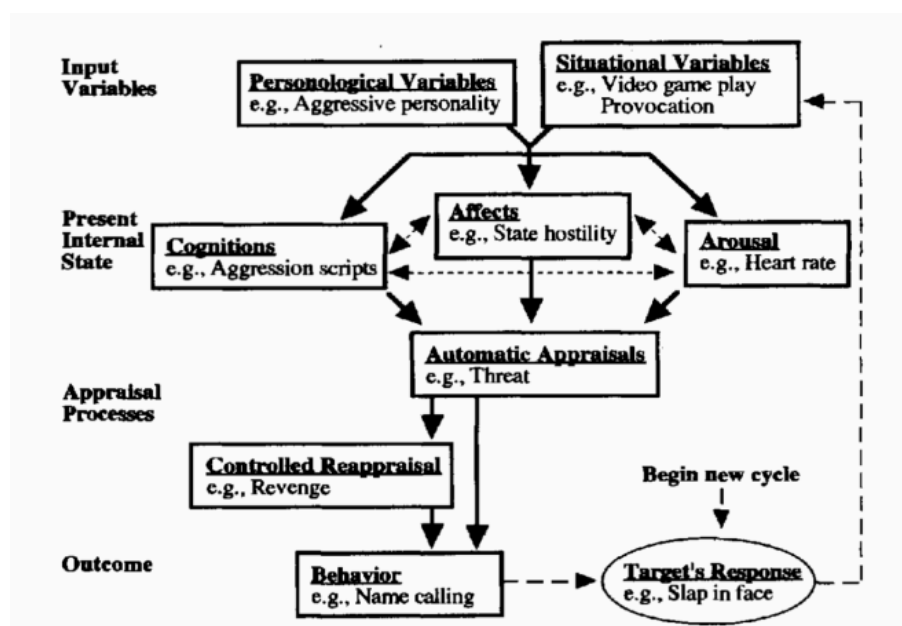


Figure 1. Single episode General Affective Aggression Model: short-term effects of video game violence [4]

Affective Aggression Model (GAAM): short-term effects of video game violence and aggressive personality. It's a new model about violent video games and aggressive behavior created by the authors. Figure 1 shows the core starting points are consistent with the viewpoint of this paper: personological variables and situational variables. The input of these two core variables exerts a significant influence on players' cognitive, affective, and arousal responses—for instance, extending hostile attitudes toward in-game enemies to the broader group or nation they represent. They interact with each other, jointly prompting players to automatically evaluate threats and exhibit usually aggressive behaviors, which may be controlled reappraisal but may also be 'brainless' ones. Then, the other party is likely to do the same thing, and a new cycle begins again.

Similarly, Anderson and his research team employed questionnaire surveys to validate the GAAM and examine the relationship between violent video game exposure and aggressive behavior. This project includes a series of experiments, including direct questionnaire distribution experiments and experiments similar to Skoric's team.

Their experiments show the predicted main effect of violent video game play on aggression. Greater exposure to violent video games predicted greater aggressive behavior [4].

However, the questionnaire respondents they selected were all students admitted to top public universities, the results could be vastly different if the group changes.

This paper synthesizes their findings and delineates the second core mechanism underlying video games' effects: players are exposed to multifaceted stimuli during gameplay, which enhances their propensity for aggressive behavior. So, violent video games would increase the likelihood of players engaging in both aggressive and non aggressive criminal behavior under certain conditions.

To be more specific, setbacks experienced by players during the game, such as mission failures, may cause emotional fluctuations: I want to win back. However, repeated failure to complete tasks or defeat opponents may amplify emotional arousal toward anger, potentially fostering a retaliatory mindset.

Based on this, it has become clear why violent video games, especially online ones have related impacts. If it's just a setback in single player games, the impact may not be too high, but in online

games, the provocative behavior that the opponent may make and the fact that one has been unable to defeat the opponent through any way will cause the anger level to skyrocket.

Consider a scenario: a player is playing CS2 and the opponent's marksmanship is very good. You didn't kill a single enemy in the whole game, but instead died more than ten times. You know that you can't regain your lost face in the game. Throwing the mouse or keyboard seems to reduce anger. What if it's not enough? Then, you may learn from the player's appearance and attitude to retaliate against innocent people, then regards innocent people or the entire society as being in cahoots with that player, which may lead to distorted psychology: the world is targeting me.

Moreover, based on the above experiment, its degree is related to the length of playtime: the more frequent the long-term contact, more angry the players may be. However, these effects are not universal, as they are moderated by the non-game factors delineated in the following section.

3.3. Non-game factors: individual characteristic and social environment

Individual personality differences and differences in the real environment may lead to the above analysis not being applicable to all players, just like "there are a thousand Hamlets in a thousand people's eyes".

Personality differences and other non-game factors generate idiosyncratic needs, which subsequently motivate individuals to seek fulfillment through video game engagement. Research has shown that individuals with higher openness but lower agreeableness seem to be easier to becoming addicted to violent video games and often exhibit unfriendly behavior [9]. The speculation of this phenomenon is that in reality, these players are unable to satisfy their higher openness needs with their lower agreeableness, and may seek these needs through role-playing, strong visual impact, etc. in the game. Violent video games become the best choice. This research also proves that participants who usually play non-violent video games seem to be more friendly.

Secondly, The non-game factors are generally comprehensive and players may vent their anger through games to calm down after being negatively affected by campus bullying, family pressure, and other real-life factors. It's also possible to learn violent video game behavior after venting, and then engage in aggressive behavior in real life. Notably, one study suggests that the likelihood of such translation may actually decrease when individuals are exposed to multiple concurrent risk factors [10].

4. Suggestions

From the analysis of reasons, it seems difficult to start from this aspect: players who are negatively affected by video games generally have low self-control abilities. Accordingly, this section delineates recommendations targeting three key stakeholders: game developers, platforms, and broader societal institutions.

4.1. Games' design and platforms

A review proves that nonviolent interactive socialization in video games can "positively influences prosocial behavior and aspects of social well-being" [11]. Compared to setting virtual restrictions on minors, starting from this point may be more effective in reducing the negative effects of violent video games. Of course, this does not mean that games should completely removing violent elements and only retain social interaction content.

Undoubtedly, not all individuals imitate in-game violent behavior in real life: no matter how realistic, video games remain a simulated rather than a representative depiction of reality. Keeping some violent factors to provide players with a venting point while increasing positive social interaction functions may be the way out. The platform can also enhance oversight to curb in-game aggressive behavior without imposing outright prohibitions.

Besides, it seems impossible to make some of teenagers comply with the restrictions on minors, so it may be better to try to make the ending of characters who engage in violent behavior in the game more tragic, for example, being arrested and imprisoned by the police in the end, and receiving a heavy sentence to serve as a warning to them as much as possible. If it is still ineffective, this paper suggests turning our attention to society.

4.2. Society

Video game is essentially a media with the function of mapping reality. Real life experiences are likely to affect players and be reflected through video games. Social public opinion should change the direction of dealing with video games, especially violent ones. Instead, it should address the root causes of existing problems: the real-life issues underlying gaming behavior.

It seems that the platforms should cooperate with society, conduct online promotion, and encourage players, especially teenagers, to vent in real life with people's help, such as experiencing domestic violence at home, encouraging them to seek help from school teachers and friends to intervene it in real world, it may more useful to solve the problem from root. But if both are sources of pressure, they may consider the coming point.

This paper suggests that the most important thing in the current stage of society is to eradicate unfounded prejudice and collaborate with game developers and platforms: while retaining the type of violent electronic games for players to relieve stress and adding more positive social interaction functions, assist platforms in establishing a targeted database to conduct statistical analysis on players—particularly those engaging with violent video games, and identify those who may under pressure in reality and addicted to violent video games. If possible, in addition to existing passive response measures, volunteers may be selected in a specific form from society to help these players in the real world. But it may not be very realistic, as there are too many players. Focus more on high-pressure groups such as high school students may be better.

Blindly suppressing video games cannot solve the real problem behind them, but will miss the opportunity for mutual benefit and coexistence.

5. Conclusion

Drawing on a synthesis of empirical studies and scholarly literature, this paper examines the primary negative impacts of violent video games. And the conclusion is drawn that violent video games increase the likelihood of players engaging in aggressive behavior under certain factors, including but not limited to play frequency, individual differences, and environmental differences. Among them, environmental differences are likely to be the most influential factor currently known. Furthermore, prolonged exposure to video games—particularly violent titles—may extend their negative impacts to other domains, such as academic performance (GPA) and real-world social functioning.

In addition, combining different results from various experiments, such as a series of experiments conducted by Anderson's team, the author believes that video games, like other media, are a double-edged sword. Similarly, whether it is violent video games or not, they can help players vent some of

the pressure they face in reality. Social public opinion should not place violent video games in a dead end, but instead turn to cooperation with game developers and platforms to provide practical assistance to players based on individual differences behind their negative effects such as inducing players to engage in aggressive behavior.

However, this synthesis of scholarly literature also has many shortcomings. Due to the extremely fast pace of development in the current era, more new and in-depth experiments at different levels are needed to “update” people's perspectives, or it may lead people to a new “bias” due to one-sided analysis. Furthermore, this paper focuses on synthesizing and generalizing the current state of knowledge regarding video game effects and their underlying mechanisms, with the aim of mitigating existing prejudices against video games. Notably, the recommendations outlined in Section 4 remain theoretical and lack specific, actionable solutions.

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