

# The Effect of Prosocial Video Games on Adolescents' Psychological and Behavioral Responses

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## Abstract:

Video games have become an integral part of adolescents' spare lives, providing a virtual platform for stress relief and social interaction, which is particularly attractive to adolescents. Beyond mere entertainment, online video games have been recognized for their potential influence on adolescents' psychological and behavioral development. Focused on the positive effects of video games, this article is conducted on the effects of prosocial video games on the mental development of adolescents, aiming to find how these games affect their psychological and behavioral responses. It uses the General Attack Model (GAM) as a theoretical foundation and explores video games with prosociality as a content characteristic in depth by analyzing the existing literature and data evidence on adolescents' cognition and emotion, as well as the impact on their psychological and behavioral patterns formation. This review is critical to further comprehending the ways in which prosocial video games can impact the mental development of adolescents.

**Keywords:** Prosocial video game; emotion; cognition; moral development; adolescent.

## 1. Introduction

The richness and fidelity in content of various types of video games have been greatly improved recently, making them more and more attractive to game players, especially minors. Video games have gradually become an indispensable way to achieve entertainment and communication need in adolescents' daily lives, making a subtle impact on their social psychological and behavioral development. More and more researchers have begun to pay more attention to the important effects of video games on adolescents'

physical and mental health. Due to the harmfulness of game addiction, there is a prevailing concern that video games may have more detrimental than beneficial effects on individuals, since the aggressive content in violent video games will have a potential risk of reducing prosocial behaviors. However, the increasing popularity of positive psychology provides a wider horizon to researchers, encouraging them to expand their research perspective to prosocial video games to have a further look at the relationship between games and individuals' psychological and

behavioral responses in positive situation. This paper will systematically comb and review the theoretical basis and empirical practice on the effects of prosocial video games on adolescents' mental development, to provide references for subsequent empirical research and application practice.

## **2. Method**

Search with "video games," "adolescents' prosocial behavior," "psychological mechanism," and "General Learning Mode" as the subject term, query in Google Scholar, CNKI, Web of Science, and other databases, and screen out the literature irrelevant to the topic. Literature were included if they: (i) contain empirical data, (ii) have been published after 2000, (iii) contain some specific analysis related to adolescents' psychological and behavioral responses. At the same time, manual queries on the official websites of authoritative psychology journals to avoid missing literature related to the topic.

## **3. Literature Review**

### **3.1 Prosocial Video Games**

Video games, originally developed from animation, are a kind of entertainment that is based on electronic devices, needs to be carried out with the help of a certain story, and can realize human-computer interaction. The existing and widely adapted method of categorizing games is to divide video games into three main types based on whether or not they contain violent content: violent refers to games in which players can attack, assassinate, and injure characters; prosocial refers to games that do not contain violent content but involve more sharing, cooperation, and other related content, and the purpose of the game is often beneficial to other game characters, and neutral, refers to games that contain neither prosocial nor violent, aggressive behaviors [1, 2].

### **3.2 Theoretical Frameworks**

#### **3.2.1 General Aggression Model (GAM)**

In order to explain the emergence of aggressive behavior, various theoretical models have been proposed by different researchers from different perspectives, including the social learning theory and the script theory. Anderson and Bushman put forward the General Aggression Model to describe a series of changes in the Cognitive processing of aggressive information, negative emotional arousal, and violent aggressive behavior of players after exposure to violent video games [3]. They revealed the impact of

violent video games as a violent medium on individuals' immediate and long-term behaviors after exposure to violent video games and provided a description of the internal psychological mechanisms that influence individual behavior in response to external stimuli.

Due to the negative effects of video games on individuals, especially children, and adolescents, early research has explored the correlation between the two factors from multiple perspectives. The pertinent empirical findings consistently demonstrated that manipulating violent video games can change the cognitive structure and perceptual schema of the player, awakening aggressive negative emotions and eventually triggering violent behavioral tendencies or aggressive behaviors. At the same time, the player's prosocial tendencies, such as cooperating to help others, are reduced due to aggressive cognitive processing and emotional responses [4].

As can be seen, GAM has limitations in articulating the influential role of video games. It only provides an explanation of the acquisition of violent behaviour and the cognitive and emotional mediating mechanisms of violent behaviors. GAM was put up as a methodical theoretical explanation for the emergence, growth, and maintenance of aggressive conduct. The beneficial impacts of nonviolent video games, such as prosocial games, on players are hard to explain.

#### **3.2.2 General Learning Model (GLM)**

Buckley and Anderson, attempting to more fully explain the effects of video games on individuals' psychological and behavioral responses, expanded on the general aggression model by proposing the General Learning Model (GLM), which built on GAM and offered a more thorough theoretical framework for investigating the various ways that various video game genres affect people's behavior and psychological processes [5]. In addition to explaining how violent video games encourage aggressive conduct and hinder prosociality, this model also reveals how prosocial video games have an instructional or non-violent influence mechanism.

GLM and GAM share the same theoretical origins and are both based on social learning theory, but GLM expands on its explanatory scope to reveal more fully the cognitive and emotional changes and the acquisition of behaviour in video game players. This model holds that the interaction of individual variables and environmental variables will activate an individual's internal states, such as cognitive, emotional, and physiological arousal, which affect the individual's evaluation and decision-making process for the current behavior and thus affect the individual's final behavior.

The content and playing process can have differential

effects on players' perceptions and emotions, which are ultimately reflected in short-term changes in behaviour and long-term paradigm shifts. The short-term effects of video games suggest that the script of the game influences the player's choice of which behavior to perform (helping or attacking) after playing the video game. If helping behavior is encouraged or rewarded during gameplay, subsequent prosocial behavior increases. Similarly, if violent behavior is rewarded in video games, such as points, prizes, and items, then aggressive behavior increases.

### 3.3 Effects of Prosocial Video Games on Adolescents' Prosocial Cognition

Since GLM expands the scope of GAM interpretation, in addition to violent video games, it can include the influence of prosocial-themed video games and more fully explain how they affect players' psychological cognition, form prosocial scripts and schemes, and thus increase prosocial behaviors. Research has been conducted to observe the role that cognitive change plays as a mediating variable between video games and adolescents' prosocial behavior promotion, that is, to reveal the path of action of how video games can influence adolescents' behaviors through an increase in prosocial awareness and, consequently, their behaviors.

Greitemeyer and Osswald set up two kinds of video games in their study: prosocial games and neutral games. After the game, participants were asked to report their thoughts by writing as specifically as possible. The results of the data analysis showed that there was a positive correlation between the prosocial content of the video game and the level of prosocial cognitive processing of the subjects: the higher the degree of prosocial content in video games, the more prosocial thoughts individuals would have. Prosocial games can activate the subjects' prosocial cognition, thus increasing the closeness of prosocial concepts in the subjects' minds. Prosocial video games can also increase players' helping behavior in different risk situations by reducing aggression cognition, increasing prosocial cognition, and increasing players' helping behavior [2].

During adolescence, moral cognition develops rapidly, showing greater attention to the influence of the external environment. Prosocial video game manipulation increases adolescents' cognitive processing schemas of cooperation and helpfulness, attenuates the cognitive components of hurtful, competitive aggression, and subtly influences players' positive outlook on life at the implicit level.

### 3.4 Effects of Prosocial Video Games on Adolescents' Prosocial Emotions

Positive emotion is an important premise to ensure the

healthy development of adolescents' bodies and minds. Players can emotionally experience positive social emotions such as pride, empathy, and friendliness by playing prosocial video games. At the same time, they can promote the generation of prosocial behaviors by regulating players' negative emotions.

Saleem et al. used prosocial, violent, and neutral video games to activate individuals' target emotions and then measured their positive emotions and hostile attitudes. The results showed that, compared with violent games and neutral games, prosocial games increased participants' positive emotions and reduced participants' hostile states [6]. Video games with violent content can awaken negative emotional experiences in players, such as violent games, on the other hand, increased hostility, and anger and decreased positive emotions.

In addition, a study by Prot et al. suggested that empathy is an important mediating variable that serves as a bridge between video games and prosocial behavior of players [7]. Prosocial video games stimulate individuals to perceive the emotions of others, thereby enhancing their cognitive empathy ability and promoting the generation of prosocial behaviors.

### 3.5 Effects of Prosocial video games on adolescents' behavior

On most occasions, prosocial behavior is altruistic in nature. It refers to the behavior of cooperation, dedication, and help in line with social expectations, or even the behavior voluntarily committed without sacrifice. Previous studies have proved that prosocial video game exposure can directly affect adolescents' prosocial behavior, and it can also indirectly affect adolescents' prosocial behavior by activating their prosocial cognition and emotion.

Using psychological experimental paradigms and multiple research methods, researchers have conducted a series of studies to explore the relationship between video games and players' prosocial behaviors, yielding a wealth of valuable findings that support the exploration of the positive effects of video games. These studies examined the role prosocial video games play in promoting prosocial behavior in adolescents from two perspectives: short-term impact and long-term utility [4]. The findings demonstrate the long-term psychological mechanism of prosocial video games on prosocial behavior by demonstrating that exposure to these games can encourage teenagers' subsequent immediate prosocial behavior and that this encouraging effect persists for three to four months after the initial exposure. The experiment's validity and reliability were then further enhanced by Greitemeyer and Osswald, who used four distinct experimental paradigms to investigate

the psychological mechanism of prosocial video games' influence on players' subsequent prosocial behavior from the standpoint of social cognition [2]. Greitemeyer and his colleagues examined the short-term impact effects of video games, and the results once again support the GLM by demonstrating that adolescents tend to engage in more prosocial behaviours after exposure to prosocial video games.

In addition, Greitemeyer et al. conducted a specific study on the effect of prosocial video games on aggressive behavior in adolescents [8]. The results showed that prosocial video games significantly reduced both indirect and direct aggressive behavior of the participants.

It can be seen that the prosocial content and interactive social context of video games have positive effects on players' subsequent social behaviors. On the one hand, it will increase prosocial cognition and emotion and promote the production of prosocial behavior; on the other hand, it will inhibit aggressive behavior by reducing the cognition and emotion related to aggression [9].

## 4. Implications

### 4.1 Future Research Prospects

Current studies on the effects of prosocial video games on adolescents' psychology and behavior have proved to varying degrees that prosocial games can increase adolescents' prosocial cognition and prosocial emotion, thus promoting adolescents' prosocial behaviors [10]. Future research can be expanded in the following areas.

#### 4.1.1 Influence mechanism

Existing studies have explored the mechanism of the positive influence of video games on adolescents' behavior from two separate perspectives, namely cognition and emotion, and there is a mutual relationship and influence between cognition and emotion [5]. Future studies need to investigate the interaction between factors in a more comprehensive way. Based on the hypothesis on GLM, the interaction between individual variables and situational variables affects the assessment and decision-making process of individuals by influencing their cognitive, emotional and physiological arousal. The final behavior is determined according to the assessment results and whether resources are limited. Previous studies have confirmed that prosocial video games affect the current cognitive and emotional states of game players. Future studies may adopt corresponding psychological experimental paradigms or different measurement methods to further investigate the impact of the interaction of cognitive and emotional components of prosocial video games.

#### 4.1.2 Individual difference

Individual differences are important factors in determining the positive or negative influence of video games. The GLM argues that changes in a player's internal state are the result of the interaction of the individual's internal variables with external variables in the environment. It is still unclear whether the characteristics of game players, such as gender, age, personality, cultural background, and other factors, may cause the differential effects and the specific mechanism, which need further research and discussion. For example, due to the different social expectations for different gender roles, there are significant differences in the behavior norms between men and women. Consequently, gender difference also exists in the type of adolescents' prosocial behaviors. Girls are required to be more compassionate, show more friendly behaviors to others, and provide more emotional support for others, while boys are required to be more calm and rational, and their helping behaviors to others are also more instrumental, such as helping others to solve substantive problems. Given the variations in prosocial behaviors exhibited by male and female teenagers, are there also differences in the effects of prosocial video games on the prosocial behaviors of the two groups of adolescents? Further research is required to investigate gender variations in the impact of prosocial video games on plays' subsequent behavior, as they are still lacking.

#### 4.1.3 Video game exposure

Prosocial video games have robust interactive elements and a wealth of prosocial content, like assisting and cooperating. The majority of earlier research concentrated on how video game content and play frequency affected teenagers, discovering that different exposure to video games can have different effects on players' and spectators' social cognition and behavior [11]. Bystander behavior is very common in the real-life context of adolescents' daily exposure to video games, especially in the current era of the booming live-streaming industry, where people's ways of accessing video games are increasingly diverse. Nonetheless, the effects of prosocial bystander conduct in video games on individuals are still unclear, and academics should continue to investigate this topic.

### 4.2 Educational suggestions to promote adolescents' mental health development

For a long time, people had a one-sided cognition of the influence of video games on adolescents and believed that the use of video games would lead to game addiction, so they held a negative denial attitude towards it. Different types of games have a decisive influence on the direction

of action, and educational and prosocial types of video games can promote children's learning and psychological development.

Educators and parents need to view the advantages and disadvantages of video games more objectively. While trying to avoid the potential harm of video games, we should pay attention to examining and selecting video game resources to maximize the positive effects of prosocial video games on the mental development of adolescents. Making full use of the attractive features of video games, combining education with entertainment, and actively guiding teenagers to use media moderately and watch and operate video games reasonably can stimulate their learning motivation, promote their social adaptability, and improve their mental health.

## 5. Conclusion

In conclusion, adolescents' psychological and behavioral responses are positively impacted by prosocial video games. Using GLM as the theoretical framework, the researchers employed a range of techniques to investigate the mitigating effects of aggressive behaviors and the enhancement of prosocial behaviors among adolescents. They also found that prosocial emotion and cognition play a mediating role in these relationships. In order to further investigate the beneficial effects of video games, future research must examine the internal psychological mechanism of prosocial video games' influence on teenage behavior from the perspective of cognitive and emotional interaction and pay attention to the influence of gender, personality, culture, and other factors.

By summarizing the positive effects of prosocial video games on adolescents' cognition, emotion, and behavior, this paper guides us to view video games more comprehensively and objectively. On this basis, suggestions are put forward to combine prosocial video games with adolescent education, to combine education with entertainment, and to utilize video games to promote and optimize the psychological and behavioral development of adolescents.

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