Parents, children, and electronic games: Analyzing the formation path and countermeasures of contradictions

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Abstract: This study aims to explore the relationship between electronic games, children, and parents, as well as the issue of parental prejudice towards games. While society's attitude towards electronic games has become more rational and inclusive, many parents still hold a negative attitude toward their children's exposure to games. Existing literature focuses more on studying games addiction behavior or its characteristics, neglecting society's deep-seated contradictions. Therefore, this study starts with the characteristics and needs of electronic games, children, and parents and first applies the concept of expectation bias to analyze and explain the contradictions between parents, children, and games. The needs of parents and children have given rise to their respective expectations for electronic games. Still, due to their misunderstandings about games, there has been a deviation in expectations, leading to conflicts between parents and children. Based on the conclusion, this study aims to help parents view their children's exposure to electronic games more rationally and provide corresponding solutions and strategies.

Keywords: electronic games; expectation bias; game addition; parental attitude; parent-child relationship

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1. Introduction

Electronic games are interactive games that are played on electronic devices, including console games, handheld games, arcade games, computer games, and mobile games. Since their inception, the discussion about the impact of electronic games on children has been a topic of global concern and debate. Some individuals hold the belief that games can cause considerable harm to children and thus strongly oppose their kids playing them. Others believe that it is natural for children to be exposed to games and adopt a non-interference attitude. Still, others believe that children will inevitably encounter games, but their usage should be regulated.

Currently, while many people have developed more rational and inclusive attitudes towards electronic games, accusations against them are still present, and many parents hold negative attitudes

toward their children's game exposure. Some even forcibly attribute negative behaviors exhibited by their children to games, calling them "harmful to the young". In response to such stigma, some game enthusiasts argue that it is not the electronic games themselves responsible for any harm caused to children but rather the irresponsible behavior of parents that has led to their kids' current situation. They even have changed the slogan once shouted by parents, "Discipline games, save children" to "Discipline parents, save games". They urge parents to confront and change outdated ways of thinking and make a concerted effort to take responsibility for their children.

The relationship between parents, children, and electronic games has always been a complex and thorny issue. In daily life, many parents often express concern about their children's excessive use of electronic games, label it as "addiction", and strongly oppose their children's engagement in such activities. However, with the development of electronic games, more and more people have begun to recognize their importance in social development and have changed their views towards them. Complete denial of electronic games by parents is considered a prejudice that not only hinders the development of the electronic game industry but also prevents children from benefiting from the positive aspects. As a result, this issue has become a subject of increasing public debate.

The academic discourse on electronic games primarily centers on their impact on players. They have a control mechanism mediated by control devices that can release destructive mental energy[1–3], which may strengthen violent tendencies in some players[4–6]. This negative image of "abetting crime" and "addiction" that could induce violent behavior is a significant source of the cultural stigma attached to electronic games[7,8]. Therefore, parents tend to be generally resistant to discussing them[9–11]. Moreover, the level of dependence that electronic games can create in people far surpasses that of traditional reality-based games. The survival and development of electronic games rely on developers and players, and they show a symbiotic relationship with players. Players gain experience through games, and the development of games depends on the support of players[12]. Overall, the existing literature research mainly focuses on the influence of players' game addiction and children's academic performance, while research on the contradictory relationship between parents, children, and electronic games is relatively scarce.

The concept of expectation bias can shed light on the complex relationship between parents, children, and electronic games. It is a concept rooted in cognitive psychology that refers to people's subjective expectations and deviations when making decisions. In particular, it refers to the deviation between people's expectations and the actual values of a specific event or object[13,14]. In social science research, expectation bias can stem from subjective assumptions, a lack of information, excessive optimism or pessimism, and other factors. By applying this concept, we can better understand the contradictions that arise between parents, children, and electronic games. The needs and expectations of parents and children often differ, and misunderstandings about games can create deviations in expectations, leading to conflicts and tensions. Therefore, it is essential to address these misunderstandings and provide strategies for parents to view their children's exposure to electronic games more rationally.

On the one hand, due to parents limited knowledge and understanding of electronic games, they may have misunderstandings and prejudices about the content and form of these games. These prejudices are often based on their own expectations and preconceptions towards these games. On the other hand, children also have certain expectations for electronic games, hoping to obtain joy and

excitement from them. However, due to children's limited cognitive and judgment abilities, they may become addicted and neglect important aspects of their real life. This can be attributed to children's tendency to have an expectation bias towards these games.

In the context described in this article, expectation bias manifests as a deviation between parents' expectations for their children's exposure to electronic games and the actual situation. For example, some parents may expect their children not to be exposed to games, believing they will contribute to their physical and mental health and academic performance. However, the reality may be that the child has already been exposed to electronic games and become deeply involved, leading to a deviation between the parents' expectations and the actual situation. This expectation bias may cause parents' views and attitudes towards electronic games to deviate from objective facts, affecting family education and children's growth. Therefore, addressing the issue of expectation bias is one of the keys to understanding the main contradictions behind the issue of parents and electronic games.

The objectives of this study are threefold. Firstly, we aim to investigate the manifestation and impact of the anti-gaming wave from the late 20th century to the present, and demonstrate the importance of addressing this ongoing contradiction. Secondly, we seek to develop a new perspective by examining the concept of expectation bias and analyzing the unique characteristics of electronic games, parents, and children in relation to the aforementioned contradiction. Finally, we aim to provide our own insights into the causes of this contradiction and suggest corresponding measures to address it.

This study aims to make several contributions. Firstly, our research findings will supplement the existing literature and fill gaps in our understanding of the complex relationship between parents, children, and electronic games. Secondly, by examining the concept of expectation bias, we provide a novel perspective on this relationship, which may inspire further related research. Thirdly, we provide practical and feasible solutions to address the contradiction between electronic games, parents, and children, offering valuable insights for those seeking to tackle this issue in the future. Overall, this study has the potential to contribute to the ongoing discourse surrounding the role of electronic games in the lives of children and families.

2. The manifestations and impact of the contradictions

2.1. The development of electronic games and the wave of stigmatization

Early electronic games were very different from what we see today. In the late 20th century, video arcades were the most common venues for playing these games since personal computers and phones were not as prevalent at the time. When they were first introduced to China, the regulation of video arcades in different regions was not very strict, partly due to technological and cognitive limitations. This lack of regulation meant that there were no age or usage time restrictions on children's behavior when using video arcades, making them popular destinations for children to visit. Additionally, during this period, electronic gaming devices were not as sophisticated as they are today. There were many risks associated with playing them that could potentially harm children's physical health.

As early as 1985, an article proposed that electronic games could cause seizures[15], and some articles pointed out that the radiation from video game consoles to the eyes could damage them.

In 1993, a study titled "Preliminary observation on the impact of video game consoles on primary school students' vision" found that playing video game consoles could harm primary school students' vision[16]. Under the dual threat of children's excessive addiction to games and the dangers they pose to physical health, society's panic and resistance towards them intensified[17–21]. More and more teachers and parents expressed their concerns about the threat of electronic games, which attracted great attention from the media and caused widespread discussion within society.

Different viewpoints emerged on children's engagement with video games, with some suggesting that children who enjoyed playing with them should not be allowed to indulge themselves. In contrast, others argued that playing video games offered few advantages and that teenagers should avoid them altogether. However, in the context of exam-oriented education, these discussions gradually deteriorated. An increasing number of studies have begun to criticize electronic games, with some arguing that they harm teenagers. As a result, they were strongly stigmatized[22].

Later, the trend of giving derogatory nicknames to electronic games began to take shape, and over time, it gradually escalated. The stigmatizing nicknames of electronic games by the media started to spread widely, with titles such as "optical heroin", "electronic poison of pornography", and "electronic devil". In 2000, an article titled "Computer games, the 'electronic heroin' targeting children" was published[23], which became the most famous report on the wave of electronic game stigmatization and was widely circulated and resisted by enthusiasts. For a long time after this report, electronic games were bound to the derogatory term "electronic heroin".

Although the government's regulation of video game consoles may have been aimed at managing the chaos in video game consoles, many media outlets used it as a shield to stigmatize electronic games, exaggerating people's fear and disgust towards them in magazines, newspapers, and other media outlets. Despite research showing that playing games is not significantly related to children's violent and aggressive behavior, the media still focused on promoting the negative impact in this regard[8].

However, these articles did not address critical questions such as why children became addicted to games, how video game consoles should develop, and the most crucial issue—how to bring children's game addiction back to the right path. It can be seen that electronic games have borne the stigma of overload in the formation of mainstream social cognition, mainly reflected in the exaggeration of the negative impact of games under excessive media promotion[24,25].

As science and technology continue to advance, society's discussion of electronic games has become more profound, and academic research on them has become more rigorous. The development of electronic games and their devices has also sought to reduce potential hazards while bringing numerous economic benefits. Additionally, electronic games have gradually started to serve cultural and artistic functions, no longer relying solely on violence and gambling to create temporary pleasure, as was the case in the past[26]. For instance, games like "*Brave Heart: World War*" can carry profound anti-war themes, while smaller-scale games like "*Monument Valley*" can utilize visual misalignment to create a wonderful world for players. From the introduction of electronic games in China to the 21st century, games have improved significantly. Games that were once known as "spiritual opium" and "electronic pornography" are slowly transforming into pillars of the cultural industry[27].

Despite the transformation of electronic games, some individuals continue to hold onto the belief that they are harmful to children. Recent incidents such as the "Parent Angry Game Group Complaint"[26] and the "Father Riding National Propaganda Game Harm"[28] demonstrate that the conflict between parents and electronic games has yet to be resolved.

2.2. The impact of the anti-gaming wave from the late 20th century to the present

The anti-gaming sentiment has significantly impacted the electronic game industry, particularly the game market and production personnel. As a result of electronic games being stigmatized by public opinion, the size of the game market has been severely restricted, leading to a decline in the number of players and sales. Many game companies have been forced to downsize or declare bankruptcy, withdrawing numerous games from the market.

On the other hand, the anti-gaming wave has also profoundly impacted game creation. To avoid causing social controversy and negative impacts, many game companies have begun to restrict game content and themes, decreasing the innovation and diversity of games. In addition, the anti-gaming wave has also affected game producers' creative enthusiasm, forcing many to leave the industry.

In summary, the anti-gaming wave has significantly impacted the development of the electronic game industry. However, it has also prompted the industry to gradually recognize its social responsibility and impact on young players, promoting standardized and normalized development.

3. The protagonists of contradictions

People have increasingly relied on "competition" to secure resources as social resources are limited. Children and parents have distinct identity traits in high-pressure environments, leading to different needs and choices when facing pressure. This is reflected in their attitudes toward electronic games.

3.1. Children's characteristics and needs

In a competitive environment, children not only seek to solve various problems they face but also crave moments of rest and an escape from real-life troubles. According to data from 2020, the main motivating factors for underage gaming behavior are leisure, relaxation, communication, and achievement in competition[29]. This demonstrates that electronic games have become a significant means of leisure, entertainment, and communication for children[29].

Upon observation, it can be noted that children's competitive pressure primarily stems from their studies. If a child has good academic performance, then learning is not a daunting challenge to overcome. If they work hard according to their or their teacher's ideas, at least learning will not be so burdensome. However, children with poor academic performance are not so fortunate. From the perspective of academic achievement, regardless of whether they have put in effort in their studies, at least learning is not something they want to confront. Consequently, on the one hand, learning entails greater academic pressure for them, causing them to develop avoidance psychology toward learning. On the other hand, they cannot succeed in learning to enhance their self-confidence, so they have to boost their self-efficacy in other ways. Data from 2021 showed that 62.3% of underage internet users frequently played games online. Among them, the proportion of computer and mobile game players was 26.8% and 53.2%, respectively. Despite the widespread promotion and applica-

tion of anti-addiction systems for underage games, children still evade management and play games using their parental accounts. According to reliable data, 31.9% of children played games using their parent's accounts[29]. Electronic games can effectively meet children's need to avoid reality. Due to their virtuality, they can provide children with a relatively relaxed and idealized virtual world, temporarily enabling them to forget real-life issues and concerns. They can also help children gain a sense of accomplishment and self-efficacy in the game because numerous levels and achievements challenge kids and allow them to succeed, thereby enhancing their self-confidence. Social interaction in electronic games can also give children a sense of identity and belonging, as they can make like-minded friends, support each other, and communicate within the game.

Moreover, parental estrangement can lead to children having their own needs. Such estrangement can cause parents to misunderstand their children's thoughts, behaviors, and other aspects, making it difficult for children to seek help from their parents. Furthermore, such estrangement may hinder effective communication between children and parents, ultimately causing both parties to fail to solve problems through communication and triggering their anger due to their unwillingness to compromise. Communication can overcome small barriers, but large obstacles are difficult to overcome. It can be imagined that if these barriers persist for a long time, children will not receive effective help from their parents when facing urgent and crucial problems. They will not only be unable to gain recognition from their parents but also fail to find a sense of belonging from them. Children have to find other ways to solve their problems at this stage. In other words, the need for children to gain a sense of identity and find a sense of belonging arises from this.

In summary, children have four needs: to escape from reality, to enhance their self-efficacy, to obtain a sense of identity, and to find a sense of belonging.

3.2. Reasons why children are passionate about electronic games

Children's fascination with electronic games is not unfounded. Certainly, we can attribute this to their innate love of play. After all, whether it is a young child just starting elementary school or a teenager in the midst of adolescence, a love of play seems to come naturally. However, we cannot use "love of play" as an excuse to ignore the underlying issues and not explore the root of children's passion for gaming. Otherwise, the prejudices underlying the issue will never be resolved.

The reason for children's passion for playing games can be summarized in one sentence: the characteristics of electronic games match their needs. Electronic games are characterized by virtuality, competitiveness, and sociability. Children have four fundamental needs: escaping temporarily from real-life issues, achieving success to build confidence, attaining a sense of identity, and finding a sense of belonging. The three characteristics can precisely fulfill these four needs of children.

The virtual nature of electronic games allows for a significant detachment from real life, creating a more realistic environment that directly meets the need of children to escape real-life problems temporarily[30]. Electronic games are designed to create a highly immersive user experience, drawing players into a state of flow[31,32]. This technological trend enables children to focus on the fictional worlds of electronic games and engage in virtual activities without worrying about real-life problems[33]. Therefore, when children encounter difficulties, they can turn to playing games to escape reality and restore their emotions to a calmer state.

The competitive nature of electronic games fosters confrontations, be it PVP (player vs. player),

PVE (player vs. computer), or players engaging in clashes with specific characters in a given story (player vs. designer). These confrontations lead to "wins" and "losses" (excluding "draws" and other complex situations), and winning players feel satisfied. In contrast, defeated players only need to restart the game and try to win a new one. This is a feasible solution for gaining confidence by defeating others. Furthermore, this solution is relatively independent of the skills taught in school, and deficiencies in academic performance do not directly affect gaming skills. Electronic games can equally welcome children with good or poor grades. Playing games is an excellent way to relax for students with good academic performance, while for students with poor academic performance, playing games is a valuable way to gain confidence.

The social nature of electronic games allows children to participate in various social activities. During games, they can find like-minded friends and battle together. Outside of games, they can use their shared love of games as a topic to promote communication with friends via chat. Even strangers can come together to discuss the fun aspects of a game as long as they share the same interests and hobbies[34]. Children who struggle with social interactions can use electronic games to communicate and connect with their game friends, satisfying their social needs and finding a sense of belonging. This social aspect also attracts many game players[35,36]. The emergence of network technology has further enhanced the social attributes of electronic games, providing players with a vast virtual platform for interpersonal communication[37,38].

In conclusion, electronic games appeal to children with diverse needs by virtue of their unique characteristics, providing them with varying degrees and ways of satisfaction. Once children realize that they can obtain fulfillment through playing games, they will likely continue using them to meet their psychological needs. As a result, their dependence on electronic games gradually increases, leading to addictive behavior.

3.3. Parents' characteristics and needs

Compared to children, parents have significantly more social survival experience, which has made them aware of the importance of education. Therefore, in the process of educating children, parental supervision of their academic performance becomes an essential component of family relationships. Driven by this, urging and educating children to achieve excellent grades has become the primary demand of parents. Hence, many parents believe that their children's playtime spent on electronic games wastes energy, takes away from learning time, and delays their studies. This attitude may cause them to overlook the experiences and skills children acquire while playing games, such as communication, collaboration, problem-solving, and creativity. These skills are also critical in real life. Therefore, parents need to treat their children's behavior of playing electronic games more rationally, understand their value and potentially positive effects.

Survival needs are the most fundamental needs for human beings. However, social survival pressure can also cause some parents to exhibit competitive behavior. They must consider their family's livelihood and work to support their families, which can easily lead to them being absent in their children's growth and development. As a result, children's unmet needs for leisure, entertainment, self-efficacy, recognition, and a sense of belonging can easily be fulfilled through playing electronic games.

The responsibilities imposed by society and family can create immense pressure on parents.

Unlike children, parents cannot simply avoid this pressure and can only hope that everything will go smoothly and not cause them any trouble. This desire is often extended to their children, with parents hoping that their children will meet their expectations or at least not create any problems for them. In essence, parents' needs include ensuring their children excel academically, meeting basic survival needs, and conforming to their own expectations.

Electronic games can also pose problems for children, as excessive gaming addiction can lead to neglect of critical real-life tasks, such as academic responsibilities and family obligations. This may further increase their academic pressure and distance from their parents, exacerbating their game addiction. Therefore, parents must pay attention to their children's use of electronic games and take appropriate measures to balance their playing time with crucial real-life tasks.

Parents may have misunderstandings or prejudices regarding the gaming industry, thinking of games only as a form of entertainment and overlooking their economic and cultural significance. However, the gaming industry has become one of the most vital cultural and entertainment sectors globally, not only creating employment opportunities and promoting economic growth, but also providing people with rich and diverse cultural experiences and entertainment methods. Therefore, parents need to have a more comprehensive understanding of the gaming industry and provide their children with more opportunities to explore and understand this field.

There is a unique relationship between parents' needs and electronic games, but this does not necessarily imply an adversarial relationship between the two. On the contrary, if parents treat their children's gaming behavior more rationally and gain a more comprehensive understanding of the gaming industry, they can better meet their own needs while also providing a more diverse and beneficial environment for their children's growth.

4. Causes and solutions of contradictions

4.1. The formation of expectation bias

The conflict between the three parties arises from the different expectations parents and children have for electronic games, resulting in divergences in their expectations, which exacerbates the conflict.

On the one hand, children have expectations for the rewards, skills, and pleasure they gain from games to search for belonging and gain recognition, and some even hope to escape real life through electronic games. These expectations are often challenging to fulfill, leading to deviation from the actual situation of the game. They may spend a significant amount of time and energy playing games, hoping the game meets their expectations, provides sufficient challenges and rewards, and fulfills their social needs. However, they may feel disappointed and discouraged if the game falls short of their expectations. Moreover, while electronic games offer advantages in meeting these needs, they also increase the risk of children developing an addiction to them.

On the other hand, parents may have expectations bias toward their children's performance and behavior in games. Due to a misunderstanding of electronic games, some parents may believe that they are a harmful form of entertainment that can negatively affect their children's academic performance, physical and mental health. Consequently, they may expect their children to minimize

or even avoid playing games altogether. However, this expectation overlooks the potential benefits of games for children, such as enhancing their reaction speed, and decision-making ability, and promoting cooperation and teamwork. Conversely, children's love, pursuit, and even addiction to games may also deviate from parents' expectations, causing conflicts between them. Parents may expect their children to comply with their demands, but tensions may arise between parents and children when they observe a significant deviation from their expectations.

4.2. Coping strategies

The main objective of this study is to conduct a thorough investigation into the primary reasons for conflicts between parents and their children regarding electronic games, and to propose relevant coping strategies. By analyzing the causes of expectation bias, we can determine that the expectations of parents and children stem from their respective needs. However, expectation bias arises due to different misunderstandings of electronic games on both sides, leading to contradictions and conflicts between parents and children. Based on the aforementioned contradictory relationship and analysis, this article proposes the following countermeasures:

(1) Strengthen parent-child relationships within the family. Resolving this conflict requires mutual understanding and communication between both parties. Children need to express their needs and interests clearly, while parents need to pay attention to the impact of games on their children and establish reasonable restrictions and rules. It is essential to emphasize effective parent-child communication, cultivate healthy parent-child relationships, and ensure that children feel cared for and supported by their parents. This approach enhances children's ability to protect themselves and helps prevent excessive addiction to electronic games.

(2) Improve parents' gaming literacy. To address the issue of expectation bias, it is essential to improve parents' understanding of electronic games. This can be achieved by enhancing their gaming literacy, enabling them to objectively evaluate the impact of electronic games on their children's academic performance, physical and mental health. Parents can monitor their children's playing time and content, understand the characteristics and content of different types of games, and guide their children to use them correctly. Encouraging parents to understand electronic games and their age appropriateness better can also help them avoid developing prejudices toward gaming. This will enable parents to make informed decisions regarding their children's exposure to electronic games.

(3) Properly leverage the social influence of authoritative media and other opinion leaders. This can be achieved by promoting electronic games through public figures, both in terms of their technical and user satisfaction levels. This can reduce parental and societal panic and resistance toward children's exposure to electronic games. It can also be a crucial step in promoting further reform in the education industry. By properly utilizing the social influence of opinion leaders, we can expand public awareness and reduce negative attitudes toward electronic games.

(4) Enhance parents' educational awareness. Parents should understand their role in their children's growth, adopt appropriate educational methods and means, and avoid attributing their children's wrong behavior solely to electronic games. By developing a more comprehensive understanding of their children's lives and growth, parents can better guide their children to develop healthy habits and values, which will ultimately help to reduce excessive dependence on electronic games and prevent conflicts. Additionally, parents should also provide their children with alternative

activities that can help them develop other skills and interests, such as reading, sports, or creative hobbies.

(5) Strengthen self-discipline in the game industry. The game industry should strengthen self-discipline, improve the transparency and controllability of games, prevent excessive falsehood, violence, pornography, and other game content, and avoid negative impacts on children. At the same time, while ensuring the survival of the game industry itself, efforts should be made to develop an anti-addiction system for minors to effectively promote the healthy growth of children and promote the positive development of social and family relationships.

5. Conclusion

Since the introduction of electronic games, the relationship between parents, children, and these games has always been a contentious issue. Expectation bias, a concept based on cognitive psychology, provides a new approach to analyzing and solving this problem from a psychological perspective. The needs of parents and children give rise to their expectations for electronic games, but different misunderstandings on both sides lead to a deviation in expectations. Despite the positive changes that electronic games have undergone over the past few decades, misunderstandings still persist, creating a gap between the needs of both parties and promoting addiction and hostile attitudes. These factors have fueled conflicts between parents and children.

Hence, to effectively resolve the contradiction among parents, children, and electronic games, it is essential to reform parents' educational philosophy, enhance parent-child relationships, rectify parents' and children's misconceptions about electronic games, strengthen self-discipline in the game industry, and reduce the occurrence of expectation bias. Achieving such a resolution may not be a quick process. Still, with the concerted efforts of society and families, it can have a profound and positive impact on the development of both the education and game industries.

There are several limitations to this study. Firstly, it is not based on quantitative analysis and lacks a large sample size and a wide range of investigations. Future research could explore the relationship between parents, children, and electronic games through quantitative analysis. Secondly, this study did not investigate the changes in the contradictory relationship between children and parents regarding electronic games in different age groups. Therefore, future research could explore this relationship among different age groups.

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Conflict of interest

All authors declare no conflict of interest in this paper.

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