Research article

A comparative study of online gaming between high-performing and low-performing students—A case from China

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ABSTRACT

Children are a nation's future. In the digital era, online gaming has become deeply ingrained in the lives of children, significantly impacting them. Thus, comprehensively examining this situation is imperative. However, the existing research has predominantly focused on analyzing online gaming among underachieving students. This narrow focus has magnified the negative implications of gaming among this group while overlooking the underlying structural realities. To address this, in contrast to prior studies emphasizing underachieving students' gaming behavior, this paper takes a holistic and group-specific approach. Based on academic performance and using purposive sampling, 35 participants (18 students, 12 parents, and 5 teachers) were selected for a comprehensive investigation. This study compares the gaming behavior, significance, external assessments, and the urban–rural and socioeconomic factors associated with underachieving and high-achieving students. The study reveals stark differences in gaming behavior between the two groups. Underachieving students tend to engage in excessive gaming, whereas their high-achieving counterparts exhibit more moderate gaming habits. Further analysis uncovers distinct meanings associated with online gaming for these two groups. Underachieving students' gaming patterns align with the established theory of compensatory gaming, fulfilling their lack of achievement and meaning in real life. Conversely, high-achieving students conform to the enrichment theory, viewing gaming as a means to enrich their learning and overall lives, rather than a substitute for what is lacking. The disparity in gaming behavior is further amplified by the differential evaluations provided by parents and teachers. Moreover, this study underscores the deeper structural distinctions between these two groups rooted in urban–rural backgrounds and family education.

1. Introduction

According to the "Research Report on Internet Use by Minors in China 2022" released by the China Internet Network Information Center, the number of underage internet users in China has reached 183 million, with an internet penetration rate of 96.8 %. Among them, 62.3 % of minors spend their online time playing games [1], indicating that more than half of children spend their time online gaming. However, previous research has focused mainly on the "underachiever" group, leading one to wonder if high achievers avoid playing online games. The answer is no. Based on our long-term research in several primary and secondary schools in China, playing games is also a common phenomenon among high achievers. When asking students and teachers whether "high-achieving students

play online games," the answer is always affirmative, and they can even quickly name a person who plays such games. In fact, in some key classes of a prestigious high school in a city, more than 80 % of students play games such as "Honor of Kings" and "Game for Peace."

So why has playing games among low-achieving students received more attention than high achievers? What are the differences between the two groups in terms of gaming behavior? How do teachers and parents view and evaluate them? Why do these differences exist? As online gaming has become a popular form of entertainment for children in this era and has even become a part of their daily lives, we cannot simply analyze this phenomenon from an individual, special, or fragmentary perspective, nor can we simply answer the question of why they play. As Stephen Hawking once said, "The 21st century is a complex century." In this complex environment, children's gaming behavior is also a complicated issue. Therefore, we should study children's online gaming behavior from a holistic perspective and pay attention to the differences among groups.

This study is of paramount importance for two key reasons. First, existing research on the gaming habits of Chinese children has predominantly centered on underachieving students, thus forming a skewed perspective often referred to as the "underachiever's gaming theory." By including high-achieving students in the study, we can gain a more comprehensive understanding of the overall landscape and the true conditions regarding children's online gaming. Furthermore, extracurricular gaming has evolved into a primary battleground in today's fiercely competitive landscape of after-school education. Games no longer serve solely as a means of entertainment; they have assumed a multifaceted role. Exploring the differences within the children's gaming demographic is instrumental in shedding light on the underlying issues related to educational inequality.

Our goals are as follows: First, to present the gaming consumption patterns of low-performing and high-performing students and analyze their differences. Second, to analyze the meaning of online gaming for both groups and examine why they differ, while also studying the perceptions of parents and teachers regarding their gaming activities. Finally, to unearth the structural facts behind the differences between these two groups. Increasing the number of high-achieving students and reducing the proportion of low-performing students is considered an important educational goal for every country. Our ultimate goal is to compare the differences in gaming behavior between underachieving and high-achieving students to understand the significance of gaming behavior for students with varying academic performances. We aim to emphasize that the positive and negative effects of gaming depend on family and school education. We hope that parents and teachers will have a proper perspective on online gaming, reduce the common attribution of online gaming to underachieving students, and implement effective intervention measures.

2. Literature review

2.1. Change in research perspective: from the "dualism" of gaming to the "holism" of gaming and "diversity" in gaming groups

In the study of online games, children's gaming motives have always been the focus of discussion, and currently, the most popular one is the compensatory hypothesis. This view regards online games as a tool for compensating for various unmet needs in real life for children, from the perspective of push–pull theory. On the one hand, it emphasizes various factors such as the decline of traditional games, the lack of real-life peers and networks, inadequate family education, academic pressure, and the lack of community entertainment, which result in children not having their various needs met in real life, such as a sense of meaning, achievement, and socialization. On the other hand, it emphasizes the entertainment, social, achievement, emotional, and other attributes of online games that meet the needs of children.

The most classic theory of compensatory hypothesis is Yee's research, which believes that online games have social, achievement, and immersive properties that can meet the different needs of different players [2], and subsequent studies have almost unsurpassed his framework. Some scholars focus on studying its social attributes, believing that online games play an important social role among children [3,4]; some focus on studying achievement attributes [5], believing that special groups such as migrant workers, migrant children, and left-behind children in China can obtain a sense of achievement in games and construct identity and play a role in emotional compensation [6,7]; and some focus on studying immersive attributes, believing that online games create immersive physical experience environments through virtual technology [8]. Some scholars have also expanded the other attributes of games in research on special games, such as spiritual comfort [9,10], community unity [11], and nostalgic memories [12].

Existing research has drawn attention to the close relationship between the real environment, online environment, and children's consumption of online games, as well as the various attributes of online games. However, fundamentally, the viewpoint of substitutive compensation remains a "dualism" and homogeneity within gaming. First, the binary division of the research subjects implies the opposition between "poor students" and "excellent students" in the game, which focuses on investigating a certain group of children, especially those who are mobile or left behind, and neglects the overall fact of children's online games. This tendency is particularly evident in China. Second, existing research lacks comparative studies of group differences and fails to explore the institutional factors behind them. Third, existing research focuses on the analysis of individual children as the main subject, but lacks analysis of the attitudes of peers, parents, and teachers toward the children's game behavior.

For netizens born after 2000, consumption of online games has become a normalized behavior. To truly understand the gaming situation of this group, we need to shift our perspective from "dualism" to "holism" and "diversity" within gaming groups. Specifically, we need to focus on the overall research subjects. At the micro individual level, we should pay attention to the gaming situation of both "poor students" and "excellent students" groups, while at the meso level of families and schools, we should focus on the views of parents and teachers toward their children's online games. Second, we need to adopt a holistic perspective in our analysis, not simply treating games as a tool for substitutive compensation or as a means of generating capital, but instead focusing on the institutional factors behind the differences in gaming behavior between "poor students" and "excellent students."

2.2. High-performing and low-performing students in the context of play

Play is an important component of children's learning and growth, extending and complementing their school life. In the digital age, online gaming has become a significant form of play for children. At present, there are limited comparative studies of online gaming among low-performing and high-performing students. However, examining the differences in activities and play between these two groups offers essential insights, and it is crucial to review the existing literature in this area.

Research by Willis indicates that low-performing and high-performing students exhibit completely different behavioral patterns. Low-performing students from working-class backgrounds tend to focus on play, are good at finding amusement, and may look down upon and even criticize high-achieving students who engage less in various gaming activities. In contrast, high-achieving students tend to conform to rules more strictly and participate less in gaming activities [13]. In China's educational context, the emphasis has historically been on an educational system centered on "studying well leads to a successful career," with little advocacy for play-based education. Play has often been perceived as detrimental to academic performance, as reflected in idioms such as "playing with objects leads to the loss of ambition," underscoring China's neglect of play in education and making "play" synonymous with low-performing students.

However, many empirical studies suggest that the differences between low-performing and high-performing students are not as simplistic as "playing" or "not playing." Instead, they manifest in substantial disparities in the allocation of time spent on play and the content and meaning derived from it, which is considered an essential factor influencing academic performance. Regarding time allocation, researchers have investigated the extracurricular time allocation of Chinese adolescents. Wang found that a majority of adolescents allocate most of their free time to studying [14]. Wu and Yuan obtained similar results, with homework taking precedence in adolescents' extracurricular lives [15]. However, some researchers have noticed significant group differences in time allocation among students. DiFrancesca's study reveals that high-achieving students allocate significantly less time to extracurricular play compared with low-performing students, with learning to occupy a dominant position [16]. Furthermore, research indicates that even during leisure time, high-achieving students primarily engage in structured activities such as extracurricular classes, whereas low-performing students mainly partake in unstructured activities such as watching television and playing games [17].

In terms of the meaning derived from play, for high-achieving students, play often contributes to cognitive and non-cognitive skill development. In contrast, low-performing students, due to their participation in low-yield activities, only use play to pass the time [18].

Further research reveals that the differences in activity or gaming arrangements between low-performing and high-performing students are underpinned by class differences. Rural children and migrant children have limited access to organized, goal-oriented extracurricular activities, and the quality of their participation is noticeably inferior to that of urban children. Within this disparity, gaming holds different meanings for different socioeconomic groups. Middle-class families, for example, are in a privileged position to provide organized activities that are conducive to cultivating a middle-class culture, and their children tend to perform better academically. Conversely, working-class and impoverished families are in a disadvantaged position and cannot afford rich extracurricular activities for their children [19,20]. Vrapi (2017) and Xiong (2017) found that gaming cultures among children reveal inequalities in childhood experiences driven by class differences [21,22]. For instance, research by Burkam et al. suggests that participation rates in summer activities among children differ by family/class background, with children from higher socioeconomic backgrounds engaging more in summer learning activities, particularly in literature, mathematics, and general knowledge studies [23]. Gershenson also found differences in how children from different family/class backgrounds allocate their summer time, particularly in terms of television viewing.

Based on existing research, it is evident that high-achieving and low-achieving students exhibit significant differences in their allocation of leisure time, the content of their activities, and the meaning behind their engagement in these activities. Moreover, beneath the surface of their leisure activities, deeper structural disparities exist. Therefore, our research on children's gaming should not merely focus on issues related to addiction but should also adopt a perspective that considers group differences, analyzing the disparities in online gaming and delving further into the underlying structural differences.

As previously mentioned, in China, more than half of the children spend a considerable amount of their leisure time playing online games. In the classes we surveyed, over 90 % of the students are engaged in online gaming, indicating that online gaming has become a primary leisure activity for children. Existing research primarily revolves around studies concerning different activity arrangements. Thus, regarding playing online games, what differences exist in the gaming consumption (time spent, in-game purchases, etc.) between low-achieving and high-achieving students? What distinct meanings does online gaming hold for these two groups? How do external stakeholders, such as parents, teachers, and the media, perceive their gaming behavior? What structural differences underlie what might seem like individual differences in gaming activities?

3. Research methods

3.1. Selection of research subjects

3.1.1. Selection of student samples

The main focus of this study is middle school students who play online games, including both "low-achieving student" and "high-achieving student." Previous research has mainly focused on the "underachiever" group and has not paid much attention to the "overachiever" or "average" groups. In our investigation, we considered the situations of low-achieving students, high-achieving students, and average students. However, in our actual analysis, we chose only the first two categories of students. First, this is

mainly related to the purpose of our study. The primary goal of our research is to compare the gaming behaviors of low-achieving students and high-achieving students, identify differences between them, and challenge the prevailing theory that only low-achieving students engage in extensive gaming. Second, existing research indicates that there are significant differences in leisure activities between low-achieving students and high-achieving students, whereas average students exhibit a more balanced performance. In our research, we also found that the gaming consumption of "average students" tends to align with either "high-achieving students" or "low-achieving students," without clear distinctive characteristics. In addition, our research primarily adopts a comparative research method that requires comparability between two groups.

Furthermore, our research subjects exclude students who do not play games. On the one hand, this is because middle school students who do not play games at all are rare in reality. Data from the China Internet Center's "National Minor Internet Usage Report" show that nearly 63 % of minors spend their internet time playing games, indicating that over half of them engage in online gaming. However, these data are relatively conservative because in real life, many minors often use their parents' or grandparents' mobile phones to play games. In situations involving parents or teachers, they are very reluctant to admit to playing games. Therefore, the proportion of minors playing games is often much higher than that obtained from formal surveys. In fact, in the classes we surveyed (based on classroom questioning records), over 90 % of students play online games, and even two class teachers said that, according to their long-term observations, there were no students who did not play games. From various perspectives, this suggests that students who do not play online games at all are very rare. On the other hand, as mentioned earlier, our research primarily aims to explore the differences between low-achieving and high-achieving students in online gaming. Therefore, students who do not play games are not within the scope of this study.

Therefore, we mainly selected two groups of children who play online games: "low-achieving students" and "high-achieving students." which in fact represent the overall situation of children's games. In this study, "high-achieving students" refer to students who rank in the top 30 % of their school and the top 10 % of their class, whereas "low-achieving students" refer to students who rank in the bottom 10 % of their class. In addition to these objective criteria, we considered subjective evaluations from students and teachers. These research subjects were selected from two classes in two middle schools in a city, with one class consisting of 56 students and the other consisting of 54 students. These two classes were chosen because they are both public schools without divisions into elite classes or low-achiever classes, meaning high-achieving and low-achieving students are in the same class. Furthermore, these two schools enroll students from diverse backgrounds, including urban children and migrant children (who have rural household registrations but have lived in the city for over half a year). This provides an important template for our research.

3.1.2. Selection of online games

The online games selected for this study are "Honor of Kings" and "Game for Peace." The choice of these two games was influenced by several factors.

First, these two games are the most popular among the children's demographic in China. According to the data from the "2020 H2 China Mobile Internet Major Report", "Honor of Kings" has reached 100 million daily active users, and teenagers make up a significant portion of its active players. An unofficial survey of 240 "Honor of Kings" gamers found that 58 % of them were under the age of 18 years. Similarly, data from 2020 shows that "Game for Peace" is second only to "Honor of Kings" in terms of popularity, boasting a daily active user base of approximately 93 million [24,25].

Second, these two games receive high levels of social attention in China and are often mentioned in authoritative media reports, often linked to issues such as minors' gaming addiction and declining academic performance.

Finally, during our research, we found that the majority of students played these two games, with almost all students who played games having played or currently playing these two. Through preliminary investigations (classroom questioning), we found that the proportion of students playing "Honor of Kings" and "Game for Peace" in both classes was over 80 %. In addition, these two games are

Table 1
Basic information of participants.

Name (alias)	Age	Academic Performance	Highest Game Rank
Xiao Han	14	High-Performing	Diamond/King
Xiao Nan	15	High-Performing	Diamond
Xiao Li	12	High-Performing	King
Xiao Dian	13	High-Performing	King
Xiao Jun	13	High-Performing	Ace
Xiao Jia	13	High-Performing	Gold
Xiao Lan	13	High-Performing	Diamond
Xiao Wang	15	Low-performing student	Ace. Invincible God of War
Xiao Xian	14	Low-Performing Students	Ace
Xiao Yin	14	Low-Performing Students	Platinum/Platinum
Xiao Lei	13	Low-Performing Students	Platinum/Diamond
Xiao Hao	12	Low-Performing Students	King
Xiao Tian	12	Low-Performing Students	King
Xiao Fan	14	Low-Performing Students	Diamond
Xiao Guo	14	Low-Performing Students	Ace/King
Xiao Chu	13	Low-Performing Students	Ace
Xiao Quan	13	Low-Performing Students	King

popular online multiplayer games with similar features, including ranking systems and virtual currency transactions. They are easy to access for children, requiring only a smartphone and mobile internet connection. In summary, choosing these two games for analysis provides a representative sample and helps address concerns related to gaming addiction in society.

3.2. Data collection

This study involves both online and offline methods, using participant observation and in-depth interviews. In terms of offline research, we conducted follow-up research in two classes at two middle schools in a Chinese city in November 2018, January 2019, July 2019, and May 2022, assuming the role of intern teachers. We attended classes with students and recorded teachers' attitudes and opinions on students' online gaming behavior during class, as well as students' gaming behavior after class.

In terms of online research, the author is also a game player who uses participant observation to observe and record the behaviors of research subjects in the game and continues to track them. Finally, we selected 35 interviewees for in-depth interviews, that is, 18 students (7 high-achieving student and 11 low-achieving student), 12 parents (6 high-achieving student and 6 low-achieving student), and 5 teachers who were teachers of the interviewed students. For students, we focused on online gaming situations, reasons for gaming, attitudes toward gaming, and the impact of gaming. For parents, we focused on their children's online gaming situations, their views on online gaming, and gaming interventions. For teachers, we focused on the students' gaming situations in the classroom, their views on gaming, and gaming interventions. Table 1 shows the basic information of the student interviewees. To safeguard personal privacy, names have undergone anonymization following a standardized Chinese name anonymization protocol, with no compromise to individual privacy. Parents and teachers are not listed in the table.

3.3. Data analysis

We conducted audio recording, transcription, anonymization, and coding of the interviews. The coding process involved multiple readings of the interview data, open coding, categorization, and theme extraction [26,27]. Specifically, four coding categories were used to form four thematic concepts: differences in online gaming behaviors, differences in the significance of online gaming, differences in external evaluations, and structural differences.

First, regarding gaming behavior, we considered differences in gaming consumption and the "learning–gaming" relationship and extracted two important concepts: "excessive gaming" and "moderate gaming." In terms of gaming consumption, we considered three aspects: gaming time, in-game purchases, and gaming achievements. According to the regulations outlined in the 2019 notice from the National Press and Publication Administration aimed at preventing minors from becoming addicted to online games [28], we categorized daily gaming time exceeding an average of 3 h on weekends and holidays as "excessive gaming time," while gaming time within 3 h fell under "moderate gaming time." Regarding in-game purchases, an annual recharge amount exceeding 2400 yuan (RMB) was coded as "excessive recharge" while amounts below this threshold were categorized as "moderate recharge." We also considered the child's family situation, including whether recharge behavior was inconsistent with the family's financial capacity. In terms of gaming achievements, we primarily considered the importance children perceive in gaming achievements, including their views and pursuits related to game rankings, performance, and skins. In addition, we evaluated the balance between "learning" and "gaming" behaviors. Learning is a primary task during childhood, and the child's attitude toward "learning vs. gaming" can indicate whether excessive gaming behavior occurs. We coded statements such as "playing games without completing homework" or "believing that gaming is more important than learning" as "learning–gaming" imbalance, whereas the opposite was coded as "learning–gaming" balance.

Second, the significance of online gaming revealed two themes: compensatory and enrichment perspectives. These themes were derived from the perceived significance of online gaming for the interviewees. We coded statements in which students expressed dissatisfaction with real-life aspects such as learning and social interactions and believed that gaming fulfilled a satisfying role as "compensatory perspectives." Statements indicating satisfaction with real-life aspects and the enrichment of learning and life through gaming were coded as "enrichment perspectives."

Third, external evaluations included positive and negative themes. Positive evaluations were coded for statements using positive terms such as "smart," "talented," "capable," "balancing work and leisure," and "well-rounded development." Negative evaluations were coded for statements using negative terms such as "neglecting responsibilities," "lazy," "incompetent," "losing ambition due to gaming," "poor academic performance due to gaming," and "only focused on gaming."

Finally, structural differences were observed in both urban and rural family contexts. Specific details are presented in the Results section.

To ensure the saturation and completeness of the data, we conducted multiple rounds of interview transcript organization and encoded data verification. This approach helped ensure a comprehensive and accurate analysis by allowing us to fully understand the subtle differences in the respondents' responses.

4. Results

This analysis identified four main themes of differences between underachievers and high achievers in online gaming: differences in gaming behavior, differences in the significance of gaming, differences in external subjective evaluations, and structural differences behind these.

4.1. Overindulgence in gaming for underachievers vs. moderate gaming for high achievers

The results show that there are differences between underachievers and high achievers in two main themes: gaming consumption and the balance between "learning and gaming." Underachievers tend to exhibit excessive gaming behavior, whereas high achievers engage in moderate gaming behavior.

4.1.1. Gaming consumption: overindulgence for underachievers vs. moderation for high achievers

Gaming consumption includes material consumption (time and money) and symbolic consumption (gaming achievements). Table 2 presents the basic information on gaming consumption among the participants. The results indicate that underachievers tend to overindulge in gaming, whereas high achievers exhibit moderation in their gaming consumption. Specific results are presented as follows.

First, underachievers generally spend more time gaming than high achievers. As shown in Table 2, underachievers typically spend over 3 h gaming, with some playing for approximately 5 h, such as Xiao Wang, Xiao Jun, Xiao Guo, and Xiao Hao, and often even staying up all night, indicating excessive gaming time. In contrast, high achievers usually limit their gaming time to within 3 h, indicating moderate gaming time. Contrary to previous research that suggested that primarily underachievers play games extensively, this study suggests that high achievers also spend a significant amount of time gaming. For example, Xiao Han, who usually ranks first or second in his class, said, *"I usually play on weekends and holidays, as long as I've finished my homework."*

Second, overpayment in gaming was more common among underachievers. The results show that all participants exhibited in-game spending behavior, with amounts ranging from hundreds to thousands of yuan, and even a few children made "high-value" expenditures. Xiao Lei, Xiao Tian, Xiao Wen, Xiao Hao, and Xiao Jun recharged more than 10,000 yuan in games. Notably, underachievers were more likely to engage in excessive spending, with seven individuals spending more than 3000 yuan in a year, of which only two were high achievers.

Furthermore, renting game accounts was found to be another popular form of gaming expenditure among children. As the name suggests, renting an account is when a player rents an account on a rental platform, commonly referred to as enjoying the best game experience with the least amount of money. At present, there are dozens of rental (game-sharing platform) apps on the game market. In addition to various apps, there are rental shops on platforms such as Taobao, JD.com, and Pinduoduo. Renting accounts is very popular among children, especially underachievers.

"I didn't know I could rent an account to play at first, it was Xiao Wang who told me. When I found out, I was surprised, damn, you can actually do that. During the epidemic, I could only stay at home, and I had too much free time. If I had money, I wanted to rent an account. (During that time), I would sleep at 1 or 2 in the morning and wake up at 11, and then continue to play."(Xiao Guo)

Interestingly, high achievers generally do not consider renting accounts worthwhile, as they view it as a challenge to their gaming skills. For instance, Xiao Han stated, *"Why would you want to rent an account? Isn't that just helping someone else level up? It's pointless.*

Table 2
Basic overview of respondents' gaming consumption.

Name (alias)	Academic Performance	Highest Game Rank	Game Duration (average hours per day on weekends and holidays)	Game Top-Up (RMB yuan)
Xiao Han	High-Performing	Diamond/King	1.5	400
Xiao Nan	High-Performing	Diamond	3	1500
Xiao Li	High-Performing	King	1	88
Xiao Dian	High-Performing	King	2.5	200
Xiao Jun	High-Performing	Ace	2.5	15000
Xiao Lan	High-Performing	Diamond	2	6000
Xiao Jia	High-Performing	Gold	3	50
Xiao Wang	Low-performing student	Ace. Invincible God of War	5	1500
Xiao Xian	Low-Performing Students	Ace	3.5	30000
Xiao Yin	Low-Performing Students	Platinum/Platinum	3	5000
Xiao Lei	Low-Performing Students	Platinum/Diamond	4	3000
Xiao Hao	Low-Performing Students	King	2	20000
Xiao Tian	Low-Performing Students	King	4	18000
Xiao Fan	Low-Performing Students	Diamond	3.5	200
Xiao Guo	Low-Performing Students	Ace/King	5	300
Xiao Chu	Low-Performing Students	Ace	2	1500
Xiao Quan	Low-Performing Students	King	4	100

Besides, only people who think their accounts aren't good rent accounts. My account is pretty good; I wouldn't rent one."

Finally, underachievers are more dedicated to gaming achievements than high achievers. In games such as "Game for Peace" and "Honor of Kings," players' gaming achievements primarily include performance , rankings and skins, which are frequently discussed topics among children. Both underachievers and high achievers consider gaming achievements important, but underachievers are more dedicated to leveling up and often rent accounts to experience new gaming skins.

In terms of rankings, underachievers can achieve higher rankings in games such as "Game for Peace" in just a week, whereas high achievers are not as committed to reaching such rankings within a short period. Moreover, underachievers often create multiple accounts, gradually upgrading them from "small accounts" to "big accounts," whereas high achievers usually stop creating new accounts after reaching high rankings on one account.

Regarding gaming skins, they have no bearing on a player's gaming skills or abilities; they are purely cosmetic items that allow players to customize their characters in the game. Most gaming skins require time and money to acquire, thus serving as a symbol of a player's financial power. Skins in "Game for Peace" include costumes, firearms, and vehicles. All of our research participants had gaming skins, with Xiao Wen, Xiao Lei, Xiao Hao, Xiao Tian, and Xiao Jun having more skins due to their higher in-game spending. The results show that compared with high achievers, underachievers pay more attention to gaming skins and often rent accounts to obtain them.

High achievers such as Xiao Han and Xiao Li stated "Gaming skins are just decorations; skills are more important." Conversely, underachievers such as Xiao Yin mentioned "Renting accounts is actually to experience high-ranking accounts and skins. During chats, it can also serve as a talking point." Xia Quan also stated "I mainly rent accounts to get those skins. I don't have the money to buy them myself, like that Maserati skin, it's too expensive, but I can use it by renting an account."

4.1.2. Study–game balance for underachievers and high achievers

The study period during childhood is a primary task, and one can gauge the occurrence of excessive gaming behavior based on their attitude toward "study–game." We code statements indicating a lack of balance between study and gaming, such as gaming taking precedence over homework or considering gaming more important, as "study–game imbalance." Conversely, we code statements that reflect a balanced approach as "study–game balance."

The results indicate that underachievers frequently experience an imbalance between study and gaming. On one hand, this imbalance is evident in gaming taking a dominant role in their study and daily life. During weekends and holidays, gaming takes the top spot, and they often engage in gaming even when their homework is incomplete. They lack motivation to study and believe that playing games is more valuable. Underachiever Xiao Wang mentioned *"For me, gaming is the main thing during holidays. I just love playing games; studying is not as interesting."* Xiao Wang's mother added, *"He's always playing games at home; I haven't seen him study."*

Conversely, they are more concerned about the relationship between gaming and their life. Rather than worrying about whether gaming affects their academic performance, they focus on how gaming enriches their lives and enhances non-cognitive skills. They believe that gaming brings them joy and helps them acquire skills such as "teamwork," "communication and organization skills," and "social skills." They also perceive limitless possibilities for their future. Individuals such as Xiao Hao believe that playing games has numerous advantages: *"Firstly, it broadens your horizons; you meet different types of people in games. Secondly, it improves teamwork, which is crucial in a game like 'Honor of Kings.' Good teamwork is necessary for winning. Thirdly, it enhances communication skills, as you need to communicate with others, including strangers, while gaming."*

Furthermore, although they are aware of the negative effects of games on their studies and health, their attitudes toward gaming remain unchanged. Wang mentioned the negative impact of games on himself, *"If I play games for too long, I will forget to do my homework. It also affects my eyesight. My eyesight is now over 200°. But I can't let go of games, life without games is too painful and meaningless."*

In contrast, most high achievers can effectively balance their studies and gaming. From their perspective, academics take precedence, and they engage in gaming only after completing their academic tasks. Xiao Han, the first-ranked student in the school, mentioned her game time and said, *"After you finish your homework, you can play. Study when you should study and play when you should play. The premise is that you must complete all your homework and tasks. I only play games on weekends after finishing my homework. As long as the homework is done, I can play all I want."* Simultaneously, games mainly help them relieve study pressure. It is generally believed that *"games are not too important in our lives. Studying seriously is more important. It's just that sometimes when the study pressure is high, you can relax by playing games and chatting with friends."*

Research shows that high achievers can clearly differentiate between the virtual world of gaming and the real-world achievements that come with academic success. They value academic honors more than gaming achievements because they recognize that academic achievements are tangible and earn them respect from others, including their parents and those who do not play games. High achievers understand that gaming achievements are fleeting and confined to the gaming world. Xiao Li and Xiao Han both mentioned similar views. They said the following:

"Academic achievements are more important than gaming achievements. Academic achievements are real, and more people care about them. Parents and people who don't play games can know about them, and others will also respect you. Gaming achievements are false. If you only play games well, you won't get respect from others in real life. Gaming glory is only in the game. Games are only for multiple development, increasing communication between classmates, and becoming a topic of conversation."

Moreover, they also have a clear understanding of the impact of games on learning, and some top students even think that "the bad aspects of games outweigh the good ones." Although they will praise students who play games well but have poor grades, they can see the role of education in the social mobility process and recognize that *"hard work and learning can contribute to society, while not working hard and not learning will lead to being eliminated by society. Just playing games well cannot help you get into a good university."*

In conclusion, although both groups prioritize gaming achievements, underachievers attach greater importance to these achievements than high achievers. In the internet age, children's online gaming consumption in China has become a common phenomenon, not exclusive to underachievers. High achievers also attain significant gaming achievements. However, compared with high achievers, underachievers are more prone to excessive gaming, and their study–game balance is frequently disrupted. Why underachievers are more susceptible to excessive gaming, whereas high achievers tend to engage in moderate gaming is a question worth exploring. What different meanings online gaming holds for these two groups is another aspect that merits investigation.

4.2. Differential significance of online games for underachieving and high-achieving students

This analysis identifies two main themes regarding the significance of gaming: the compensation theory and the enhancement theory. The results show that underachievers align more with the compensation theory while high achievers align with the enhancement theory.

4.2.1. Gaming compensation theory for underachievers

A defining characteristic of the compensation theory is dissatisfaction with real-life circumstances, seeking fulfillment and compensation through gaming achievements and emotions. All 12 underachievers expressed dissatisfaction with their academic performance, a lack of achievements, and a sense of meaninglessness, while finding satisfaction and achievement in their gaming lives.

The research indicates that underachievers often use gaming achievements to prove themselves because of their dissatisfaction with real-life academic performance. In the Chinese cultural context of "academic success leads to a prosperous career," underachievers struggle to gain acceptance in mainstream culture because of their poor academic performance. Consequently, they often lack a sense of achievement in their real lives.

"Because my grades are bad, the teachers don't like me. They scold me in class, and my parents often scold me too. I just feel like I'm not smart; I find real life boring." (Xiao Guo)

"I just can't study well; what can I do? I also want to be like those with good grades. If I do, the teachers and my parents will praise me." (Xiao Wen)

In such situations, gaming provides them with a window for self-validation. For underachievers, gaming achievements not only provide a sustained sense of accomplishment but also allow them to experience the same sense of accomplishment as academic high achievers in real life, gaining the attention of those around them.

"Having a high rank allows you to show off in front of friends and be recognized by others. It's like the top students at school; everyone knows who they are just by mentioning their names." (Xiao Wang)

"Having a high rank makes more people notice you. If your rank is too low, no one cares. It's similar to students with poor grades in class." (Xiao Wen)

The research also reveals that due to their poor academic performance, underachievers often face rejection and struggle to establish close emotional connections with classmates and teachers in real life. As a result, gaming becomes a crucial tool for them to engage in emotional interactions. Many underachievers mentioned this aspect.

"In games, nobody cares about whether you're good at studying or not; it's all about how well you play. If you play well in games, you won't let your teammates down, and you'll be a good teammate. Through gaming, I've met people of all ages, from elementary school kids to college students and even married women. I like my friends in the game; they won't ignore me just because I have bad grades." (Xiao Wang and Xiao Tian)

Skins in games are a significant means of making friends for them. Xiao Wen has expensive golden Maserati skins in "Peace Elite." When asked if he has made friends through gaming, he proudly states *"Because I've spent a lot of money and have many skins, my classmates, friends, and even strangers like to play with me. When I'm not playing, I lend my account to them. I have a golden Maserati and an Aston Martin on my account."* Xiao Wang also mentioned *"Skins represent your external image. Having a cool gun, nice outfits, and a fancy car can get you more attention from others. Skins are definitely a way to show off. In 'Honor of Kings,' nobles receive rewards like diamonds every week, and they have exclusive skins and profile frames. If you think about it, being a Noble 10 makes you look like a rich person. Everyone wants to be friends with you. In PUBG, if you own a Maserati or Aston Martin, others will think you're very rich."*

4.2.2. Gaming enhancement theory for high achievers

So what sets the significance of online gaming apart for high achievers compared with underachievers? The results show that most high achievers (6 out of 12) are satisfied with their academic lives. For them, gaming represents challenges, enriching their lives, stress relief, and proving their intelligence, aligning with the gaming enhancement theory.

The research indicates that gaming serves as a validation of high achievers' dual excellence. Similar to underachievers, high achievers consider gaming achievements a form of honor. However, for high achievers, gaming achievements also symbolize their intelligence, creating an aura of accomplishment. They use gaming achievements to demonstrate that they are not only high achievers in real life but also "elites" and "kings" in the gaming world. When discussing the gaming world, Xiaojing excitedly states:

"Gaming is like real life; when you play well, you can show off. When you go to school, you can talk to everyone about your skills, and they'll acknowledge you. They'll also seek your advice. It's like academic excellence and gaming skill go hand in hand. Classmates also admire me because they feel I possess 'double talents.'"

Furthermore, high achievers, unlike underachievers, do not let gaming "replace" their daily lives. Instead, gaming serves as a seasoning in their lives. High achievers often face substantial academic pressure, and gaming helps alleviate that pressure. This is a significant reason for their gaming activities, as mentioned by several high achievers.

"We study for too long, and we need to relax. Playing games can relieve stress, and it's fun to play with classmates. It helps us adjust ourselves." (Xiao Jun)

"What does this game mean to me? I think it's mainly about relieving stress. When I'm tired of studying, I want to play games. However, I can't play all the time; I play when it's appropriate, and when it's not, I don't. It's about self-discipline." (Xiao Han)

Therefore, although high achievers value gaming, it remains only a part of their study and life, primarily serving as a "supplement," "stress reliever," and "enhancement."

4.3. Differences in external subject evaluations and amplification of gaming effects

Importantly, the results show that both underachievers and high achievers play games such as "King of Glory" and "Peace Elite," but underachievers often receive negative evaluations for their gaming, whereas high achievers receive praise from various quarters. Specifically, 18 students, 12 parents, and 5 teachers provided positive evaluations of gaming for high achievers, whereas, apart from some underachievers (7), most high achievers (6), average achievers (5), and especially 12 parents and 5 teachers provided negative evaluations of gaming for underachievers, further amplifying the differences between the two groups. The detailed results are as follows.

4.3.1. Negative evaluations and the amplification of negative effects of gaming for underachievers

Overall, whether within the student group, among parents, or among teachers, gaming by underachievers is generally met with negative evaluations.

Within the student group, underachievers who excel in gaming often face disdain from their peers. In the digital age, gaming experts (elites) become the focus of the school. Whenever someone asks who is good at games, teachers and classmates can all name someone. For example, Xiao Wang is a top player in "Peace" and has won the title of "Invincible War God" (the highest level in the game). However, due to his poor grades, when classmates talk about him, they often use sarcastic and teasing tones such as "he can make a living by playing games" or "he's good at games, but not at studies."

One student mentioned, "He's really good at games, probably the best in the whole school, but his grades are bad, and the teachers scold him often." Another student added, "He has the worst grades in our class, but he's famous for playing games."

What is even more serious is that, in the eyes of underachievers' parents, games are like "drugs," and they deeply despise them. Conflicts between parents and children often revolve around games. In their view, games are the main reason for their children's "bad behavior." Wang's mother mentioned that "today's children are harmed by that game, their grades can't improve, their temper has also become worse. Games are like that drug, harming too many children." Such parents' views are more common, and they also hope that the country will vigorously crack down on online games to eliminate their children's interest in games.

Furthermore, parents often attribute their children's poor grades entirely to gaming. They frequently mention extreme cases they have seen in the media and in their surroundings, making them extremely concerned.

"Look at our child, he started playing games in the fourth grade, and his grades have never improved since then. It's all because of playing games. If he didn't play, how could his grades be bad? He plays 'King of Glory' and 'Peace Elite' every day. These online games are ruining kids. Did you see the news a few days ago? There was a child who jumped off a building because his parents wouldn't let him play games. I think the government should completely ban these games and keep children away from them." (Xiao Yin's father)

"My child's grades are bad because he plays games. He did fine in sixth grade, but when he entered seventh grade, his performance plummeted. He comes home every day and plays that game. He won't listen to me even if I scold or beat him. He just wants to play. What can I do?" (Xiao Guo's mother)

Even high achievers' parents, although generally more accepting of gaming, sometimes provide negative evaluations. Some parents believe that "smart kids who play games are willing to use their brains, while those with poor grades don't want to think and just play games, which doesn't serve any real purpose."

Similarly, in the eyes of teachers, underachievers playing games signifies addiction and often leads to negative evaluations such as "neglecting their studies," "only knowing how to play games," and "losing ambition." Teachers also often attribute the poor academic performance of underachievers to gaming.

One teacher commented "*It's because they play games so much that their grades are so bad. Nowadays, students p*lay games too much, especially those with poor grades. They don't do their homework and only know how to play games. How can their grades not be bad? I even feel like their brains have been ruined and they can't concentrate in class."

Another teacher scolded an underachiever in class, saying, *"Your grades are bad, and you don't study well. All you do is play games all the time. You haven't improved at all."*

4.3.2. Positive evaluations and amplification of positive effects of gaming for high achievers

Whether within the student group (including underachievers), among parents, or among teachers, gaming by high achievers receives positive evaluations. They are often described as "smart," "talented," "well-rounded," and "balancing work and leisure."

The research shows that among students, high achievers who play games are considered true elites. Students give positive evaluations, including terms such as "impressive" and "smart," to students who excel academically and perform well in games. They believe that such students are genuine "gods" (experts) and admire them.

One student said *"It's not just the underperforming students who play games. The first and second ranked students in* our school also play, and they play very well. Only being good at studying is called a nerd. If they are also good at games, they are considered very intelligent, and we envy them. Sometimes they actually spe*nd less time studying than us, but they perform better than us."*

Originally, online gaming was synonymous with underachievers, and their "glory" was mostly confined to the virtual space. However, high achievers have added the "glory" attribute of online gaming to the real world. Through online gaming, high achievers break free from the image of "bookworms" and receive praise from their peers.

Originally, online games were synonymous with mediocre students, and their "glory" was mostly confined to the virtual space. However, excellent students added the "glory" attribute of online games in the real world. Through online games, excellent students rid themselves of the image of being a "nerd" and also gained the praise of their classmates.

Furthermore, in contrast to the "drug" view held by underachievers' parents, high achievers' parents believe that gaming is conducive to "well-rounded development." All seven high achievers' parents approve of their children playing games in moderation and provide positive evaluations. Han's father, whose child was admitted to a prestigious Chinese university, said.

"My son's class is the best in the school, and all of them have good academic performance. Even the worst student in the class was admitted to a certain university (985). Everyone plays games, and they all play very well, especially the top student in their class, who is famous for playing games. Apart from class time, they are always playing games. He spends 60 % of his time playing games and only 40 % of his time studying, but he still got admitted to Tsinghua. He is so talented that even the teachers are impressed. I think those who are good at playing games and have good grades will have better development prospects than those who are good at academics but not good at playing games. If you only study hard, you will not succeed. My son started playing games at the age of three, and he plays games like King of Glory and Game for Peace. His grades have always been good. My point of view is that as long as he does well in academics and it does not affect his studies, he can play games as much as he wants. My son has spent tens of thousands of yuan on games so far. Every time I reward him with money, including the awards he received at school, he spends it on buying things in the game."

When asked about high achievers who also play games, even underachievers' parents expressed their approval. One parent explained, "You can't compare them. The top student in their class also plays, but he has good grades, and he's smart. If my child has good grades, I would also support him playing games. Gaming can help develop other skills."

Likewise, teachers provide positive evaluations of high achievers who play games and view them as intelligent and talented. A math teacher explained *"Xiao Jin and Xiao Han not only have good grades, but also play games well. Even though they play games, they don't affect their studies. They are smart. They know when to* play *and when not to play."* Even if teachers sometimes know that top students are playing games on campus, they do not take harsh measures and trust them, believing that gaming can contribute to a "balance between work and leisure."

In summary, while both underachievers and high achievers play games, students, parents, and teachers tend to give underachievers negative evaluations and often attribute their poor grades to gaming. In contrast, high achievers received more positive evaluations and are seen as having a well-rounded development, further highlighting the differences between the two groups. Therefore, it is necessary to further examine the structural differences behind the two views.

4.4. Differences between underachievers and high achievers: urban–rural and social class factors

We also examined the urban–rural and family situations of underachievers and high achievers, which helps shed light on the factors underlying the differences in their gaming behavior. In fact, in one of the classes we investigated, there were 10 urban children and 44 migrant children. The research showed that although migrant children accounted for the majority, we found that only one of the top five students was a migrant child, while the other four were urban children who lived in high-end communities and whose parents adopted a cooperative parenting style, emphasizing the importance of parental involvement and home–school cooperation. The parent committee was entirely controlled by urban parents. In contrast, among the 11 underachievers in our study, only 1 came from an urban middle-class family, and the rest were migrant children. Their parents were mainly from the working class, had less time to attend to their children, and provided less support. This indicates that the urban–rural and class differences are the reasons behind the difference in gaming behavior between underperforming and high-performing students.

Teacher M pointed out *"In our class, most of the students at the bottom of the rankings are from outside the city. Their parents are busy with work and sometimes the teacher cannot contact them. Even if the teacher tells them not to let their children play games, they are difficult to control. But look at the parents of our class's top student, they care about him very much, and actively inquire about his situation at school. Although he* also plays games, his parents regulate him and cultivate good habits, so he won't become excessively addicted to games."

Most parents of migrant children are engaged in physical labor and often busy with their livelihoods. Even if they know their children are playing games excessively, they feel helpless. As Xiao Wang's mother said, "My husband and I are usually busy working. Our combined income is only about 7000 yuan, and we have to pay rent here, provide for our son and daughter, cover our daily living expenses, which adds up to significant expenses. To earn more money, we often work overtime, and we only have 3 days off a month. It's too tiring, and we don't have time to take him out to play. When he comes home, he locks himself in his room and plays games. We can hear him playing games at night."

In contrast, parents in urban families tend to cultivate their children's good gaming literacy and emphasize that games can only be played after homework is completed. The interviewed parents of high-performing students also mentioned "I have always told my child that he can only play games after completing his homework. I consciously cultivate his good habits in both studying and gaming." This indicates that high-performing students can achieve a balance between studying and gaming is largely because of their family education.

5. Discussion of results

This study has yielded several important findings. First, contrary to the common belief that online gaming is associated with underachieving students, high-achieving students also engage in online gaming and value their gaming achievements. This is an interesting discovery as it challenges the stereotype of high achievers as studious bookworms. In the digital age, both high achievers and underachievers actively participate in online gaming and are skilled at gaming interactions and exchanges. Moreover, within the student community, those highly regarded students excel in academic performance and gaming.

Second, the study found differences in online gaming behaviors between underachievers and high achievers. Underachievers are more prone to excessive gaming, whereas high achievers tend to engage in moderate gaming. In addition, online gaming holds different meanings for these two groups. Unlike mainstream research, which often views gaming as a compensatory tool during childhood, for high achievers, online gaming serves more as an enriching activity. High achievers already receive significant attention due to their academic achievements and do not lack a sense of accomplishment. Gaming serves as a stress reliever and adds fun to students' lives without negatively affecting their academic progress. This differs from the common assumption that both underachievers and high achievers use gaming as a compensatory activity. This nuanced perspective deserves attention.

Third, the differences in online gaming between underachievers and high achievers result not only from their individual attitudes and behaviors but also from subjective evaluations by students themselves, teachers, and parents, which further magnify these differences. To some extent, the differences in-game evaluations between underachievers and top achievers are the result of a "conspiracy" between elite parents and schools, which has "institutionalized" the positive effects of top-achiever games and the negative effects of underachiever games. This type of evaluation attributes the differences between underachievers and top achievers to personal differences in talent and ability, which have gradually been "institutionalized" by parents, teachers, and the media, forming a stereotype. Evaluation is not only a subjective judgment of individuals but also a social and cultural process [29], which occurs in the field of practice and experience and involves the institutionalization of value judgments. Therefore, the evaluation process of underachiever and top-achiever games by students, parents, and teachers is also the institutionalization of their differences. The game practices of the two groups of students have reached a consensus among student groups, teachers, and parents, and their game identities have been assigned different meanings and functions through comparison, with the former's game behavior gradually stigmatized and the latter's game behavior gradually legitimized. In the internet age, this "institutionalized difference" is more likely to expand and spread, with the top-achiever model effect being mythologized and the underachiever typical case being alienated.

Furthermore, structural factors play a significant role in the differences in gaming behaviors between these two groups. While in the West studies have focused on racial differences in teachers' evaluations of high achievers and underachievers, in China, these differences are more evident in urban–rural and socioeconomic disparities. The study found that, compared with high achievers, underachievers receive less parental support and companionship, especially for children from migrant families in China, as their parents are often occupied with making a living and cannot engage their children in organized activities during weekends and holidays. Moreover, regarding cognitive perceptions of gaming, parents of high achievers tend to emphasize the positive role of gaming and guide their children to play games rationally. In our study, a key class in a prestigious urban school consisted mostly of middle-class families. These students showed no less enthusiasm for popular games such as "King of Glory" and "Game for Peace" than students in typical rural town schools. Teachers and parents also held more positive attitudes toward their gaming activities. Similarly, in schools with high achievers, most families have a strong educational atmosphere, and parents pay more attention to their children's companionship. This is consistent with the OECD's (2016) findings that poor academic performance is closely related to family education and school education [30]. A study from China also indicated that students in key schools are more interested in playing games than students in non-key schools [31] and students in key urban schools are more likely to come from affluent families [32].

This study's findings align with research by scholars such as LaRue and Xiong, who have discussed the impact of education inequality on children's gaming behaviors. However, previous research mainly focused on differences in activities or traditional game content, whereas our study specifically investigated the same online game. Online gaming may appear to offer an opportunity for equal enjoyment across different socioeconomic groups, but it often conceals underlying inequalities and in some cases exacerbates them. As Khan argues, open societies are still controlled by the elite class, who maintain their status not by explicitly dividing themselves from the lower class but by creating an illusion of equality for all [33]. In this seemingly equal and open society, online gaming can serve as a tool to mask class differences and even further the narrative that the lower class is not trying hard enough.

In conclusion, the differences in-game evaluations between underachievers and top achievers are closely related to meritocracy, which is obsessed with the pursuit of "talent" and "achievements," and factors such as a child's talent and effort are emphasized more and the underlying structural factors such as urban–rural and class differences are ignored. Moreover, with the proposal of quality education, meritocracy refers not only to academic achievements but also to the appreciation of all-round talents. In the era of the internet society, meritocracy is reflected in the thinking between the virtual and real worlds, especially in academic evaluations and competitive games. In China, the influence of the college entrance examination system means that the evaluation standard centered on academic achievement is even more severe.

This study explores the gaming differences between underachieving and high-achieving students in the digital age. In terms of research contributions, looking at the choice of subjects and perspectives, we have taken a holistic approach by expanding the scope of research on children's online gaming. We have included high-achieving students, a group often overlooked in previous research, and we have given due consideration to the views of parents and teachers on children's gaming. The findings of this study demonstrates that online gaming is not synonymous with underachievers, as high-achieving students also engage in online gaming, albeit in moderation. In comparison to the past, the inequalities in children's play during the internet era are more subtle. In terms of practical significance, the results of this study help us better understand the behavioral and meaningful differences in online gaming between

students with different academic performances, providing essential insights for the development of relevant educational policies and intervention measures.

This study has several limitations. First, in terms of the research subjects, we primarily used purposive sampling to select high-achieving and low-achieving students based on their academic performance. The selection criteria were relatively narrow, and given the diverse range of evaluation standards, this approach has its limitations. In addition, high-achieving and low-achieving students can be further categorized into different types, and a more nuanced classification would be scientifically rigorous. Due to the constraints of this case study, such distinctions were not made; however, future research could explore this aspect further. Second, the two games that we selected are currently the most popular games among Chinese children, and we examined their gaming behavior during a specific period. However, different time periods may feature different game types and gaming habits because children's gaming behavior is continually evolving. The significance of gaming to them may also vary, and different countries have distinct gaming policies, popular game genres, and parenting styles, all of which can influence a child's gaming performance. These factors require further exploration. Finally, this study provides only a preliminary analysis of the relationship between socioeconomic differences and differences in children's online gaming behavior. It lacks a deeper and more comprehensive investigation. Future research should delve more deeply into this subject.

6. Conclusion

This study starts from the perspective of the overall and differential characteristics of a population, selecting underachievers and high achievers for research. The aim of this study is to explore the differences in online gaming behaviors between high achievers and underachievers, with a particular focus on Chinese children. The research found that both underachievers and high achievers play online games, but underachievers are more prone to excessive gaming, whereas high achievers engage in moderate gaming. Furthermore, underachievers often prioritize gaming, with games dominating their lives and providing a sense of achievement and meaning that may be lacking in real life, aligning with the compensatory theory. In contrast, high achievers tend to prioritize their studies, with gaming serving as a supplement to their lives and studies, supporting the enrichment theory.

Despite playing the same online game, high-achieving students generally receive praise from their peers, parents, and teachers, who believe that these students are naturally intelligent, whereas low-achieving students who play the game receive more negative evaluations, with their poor academic performance attributed to gaming addiction, further widening the gap. However, this is not correct, as the differences in gaming behavior between low-achieving and high-achieving students are driven by structural factors such as the urban–rural divide and socioeconomic status, rather than simple personal talent.

Ethical approval

This study has obtained ethical approval from the Academic Committee of the College of Public Administration at Hohai University (hhu.20190321).

Informed consent

The research was conducted with the verbal consent of the participants, and for underage participants, parental consent was also obtained. Participation was voluntary, and participants were assured that the information collected would be treated anonymously and strictly used for research and academic purposes. They were also guaranteed the right to withdraw from the study at their convenience.

Data availability statement

Data will be made available on request.

Additional information

No additional information is available for this paper.

CRediT authorship contribution statement

Lianxiu Bu: Writing – original draft, Investigation, Funding acquisition, Conceptualization. **Bairen Ding:** Writing – review & editing, Validation, Methodology, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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