

Article

Evaluation and Optimization Paths of Anti-Addiction Systems for Minors on Digital Platforms

Adam • Skoweonek¹

¹ ASkoweonek@163.com

Abstract: This study focuses on the anti-addiction system for minors on online platforms, aiming to evaluate its current status and propose improvement suggestions. By investigating the domestic and international research status, analyzing the significance of the topic, and designing research contents such as evaluation indicators, existing problems, and improvement measures, this study intends to provide reference for improving the effectiveness of the anti-addiction system, promoting the healthy development of minors, and realizing the social value of related enterprises.

Keywords: Anti-Addiction System; Online Platforms; Evaluation; Improvement Suggestions

1. Introduction

1.1 Domestic Research Status

1.1.1 National Policies - The "Strictest" Regulations Issued

The newly revised Minor Protection Law has a special chapter on "Internet Protection", which clearly stipulates that providers of online products and services shall not provide products and services that induce minors to become addicted. Unscrupulous merchants that openly sell or rent online game accounts to minors, bypass the anti-addiction system, or even use "no anti-addiction" as a selling point shall be seriously investigated and punished as serious circumstances.

On August 30, 2021, the National Press and Publication Administration issued the Notice on Further Strict Management to Effectively Prevent Minors from Being Addicted to Online Games, requiring that online game enterprises can only provide 1 hour of service to minors every day on Fridays, Saturdays, Sundays and legal holidays from 20:00 to 21:00. They shall not provide game services to users who have not registered or logged in with real names in any form, including the tourist experience mode.

1.1.2 Social Situation - Turning a Blind Eye to Interests

The 2020 National Research Report on Minors' Internet Use shows that the scale of minor netizens in China reached 183 million in 2020, with an Internet penetration rate of 94.9%, higher than the national average. Some minor netizens may have excessive Internet use. 11.5% of minor netizens spend more than 2 hours online every day on weekdays, and 12.2% spend more than 5 hours online on holidays.

In 2020, the actual sales revenue of China's game market was 278.687 billion yuan, and Tencent Games, which accounted for half of the industry, achieved operating income of 156.1 billion yuan. Before the issuance of the ban by the National Press and Publication Administration, 62.5% of minor netizens often played games online, and 13.2% of minor mobile game users played mobile games for more than 2 hours a day on weekdays.

Although various game manufacturers have gradually strengthened anti-addiction measures, some game account trading platforms still minors to buy accounts without anti-addiction restrictions. The latest data shows that an average of 7.24 million accounts trigger face recognition verification during login and 60,000 accounts during payment every day. Due to refusal or failure of face recognition verification, about 90.5% of accounts in the login link are included in anti-addiction supervision, and 80% of accounts in the payment link have their recharge behavior intercepted.

1.1.3 Family Influence Factors - Lack of Communication Under Spoiling

Over-indulgence of parents is a major cause of children's addiction problems. Currently, 95% of refund appeals are consumption by minors who use their parents' identity information to bypass supervision. Many parents do not understand their children's online situation, have poor parent-child relationships, lack sufficient care for rural or left-behind children, and fail to help children develop good online habits. Parents' failure to set a good example in family education often exacerbates minors' Internet addiction.

1.2 Foreign Research Status

1.2.1 Asian Model Represented by South Korea and Japan: Multi-department Legislation and Whole-process Intervention

South Korea was one of the first countries in the world to issue laws and policies to deal with Internet addiction among primary and secondary school students. From the perspective of participants in preventing and treating Internet addiction among primary and secondary school students, South Korea has formed a prevention and treatment method involving eight departments, including the Ministry of Science and ICT, the Ministry of Gender Equality and Family, the Ministry of Culture, Sports and Tourism, the Ministry of Education, etc. The Ministry of Science and ICT plays a leading and coordinating role.

In 2011, the South Korean National Assembly passed the amendment to the Minor Protection Law, establishing the principle of parental consent and the "game curfew" system. This bill was the first to elevate the restriction of teenagers' online time to the legal level, clarifying the responsibilities and management methods of parents and game operators.

Similar to South Korea, Japan's Ministry of Internal Affairs and Communications, Ministry of Justice, and Ministry of Education, Culture, Sports, Science and Technology are responsible for managing the national Internet use, including formulating Internet use regulations, health and prevention measures related to the Internet, and special prevention measures for school-age children. In recent years, the Japanese government has issued bills such as the Law on Strengthening the Safety of the Youth Internet Environment and the Law on Restricting Dating Websites.

1.2.2 European and American Model Represented by Germany and the United States: Social Organization Participation and Project Promotion

Governments in European and American countries generally do not directly participate in the prevention and treatment of Internet addiction among primary and

secondary school students, but usually provide funds to social non-profit organizations to carry out prevention work through relevant projects. Represented by Germany, Germany has formed an addiction assistance system with associations as the main body, projects as the basis, and websites as the medium. The German "Internet Addiction Industry Association" is mainly responsible for preventing and treating Internet addiction among primary and secondary school students. In addition to providing consulting services on Internet addiction, the association also promotes many preventive service projects, such as "Lost in Space".

To prevent primary and secondary school students from being addicted to online games, European and American countries advocate the online game rating system, stipulating that all games must have labels on content and age groups on the packaging, so that buyers can see whether the game is suitable for their children, and merchants are not allowed to sell games to minors and other inappropriate consumers, thereby reducing the chance of teenagers unsuitable games for their age.

2. Significance and Academic Value of the Topic

2.1 Significance of the Topic

2.1.1 National Level - Regulating Industry Chaos and Promoting Youth Development

In the new era of socialism in China, the Internet has become popular rapidly. While providing convenience, it also brings drawbacks. With the improvement of material conditions, minors are exposed to the Internet at an early age and become addicted to it. The younger generation is the hope of the country, and it is necessary to ensure their vitality and vigor. Addiction to the Internet will lead young people to lose their ambition and be content with the status quo. The implementation of anti-addiction policies aims to change this situation, but the implementation of anti-addiction is not thorough and needs improvement. At the same time, the implementation of anti-addiction also forces online platforms to adjust their audience groups, improve service quality, and promote the high-quality development of the game industry and other fields; anti-addiction also puts forward higher requirements for culture, developing towards the trend of age segmentation.

2.1.2 Social Level - Eliminating Bad Trends and Creating a Good Atmosphere

Minors bear the expectations of society. The implementation and improvement of the anti-addiction system help reduce or even eliminate the bad trend of being addicted to games in society, cultivate teenagers' comprehensive abilities in reality, focus on reality, and inject youthful vitality into the whole society; for various online platforms, the process of continuously improving the anti-addiction system is also the process of realizing corporate social value, which must strictly comply with relevant regulations; with the gradual implementation of the anti-addiction system, family factors have become an indispensable aspect. The implementation of anti-addiction has also increased social attention to family issues. Problems such as insufficient time and attention between parents and children need to be solved urgently. The of these problems also provides a direction for how to form a better family atmosphere.

2.1.3 Personal Level - Staying Away from Virtual Games and Improving Comprehensive Quality

The implementation of the anti-addiction system is extremely beneficial to the development of teenagers, especially middle school students. Being addicted to the Internet is an important factor leading to the psychology of school weariness and declining grades. Online games have always been regarded as a scourge by middle school teachers. If prevention can be carried out, it can have a huge positive impact on teenagers; moreover, if pleasure cannot be obtained through the virtual network,

teenagers will meet their entertainment needs through other ways, such as sports, art, and learning, which also promotes the improvement of their comprehensive quality.

2.2 Academic Value

Through the understanding and analysis of this subject, we find that the implementation of anti-addiction has exposed some problems, such as insufficient attention to minors within families, minors' inability to extricate themselves from Internet addiction, and some online platforms' wait-and-see attitude towards the implementation of anti-addiction. This also indicates that anti-addiction is not just a social phenomenon, but also has deeper academic significance behind it, involving the psychological significance of minors in the growth process; the social and ethical significance of some parents' neglect of their children in families and the strong concern of all sectors of society for the younger generation; some online platforms' hesitation in the face of anti-addiction policies, which also contains economic implications. Research on this subject helps us have a better understanding of the psychology of minors, thereby creating a better development environment for them and helping the younger generation thrive; at the same time, it can also have a new understanding of the family relationship between parents and children in the new era, which is conducive to finding laws to solve related problems in this field; exploring the economic phenomena behind online platforms through research provides an example for predicting the economic and industrial impact of the implementation of relevant policies in the future.

3. Main Research Content

3.1 Evaluation Indicators

3.1.1 Scope and Level of System Functions

Ensuring the system coverage to protect minors' interests: The original intention of the anti-addiction system is to limit the time minors spend on online games. Therefore, whether the anti-addiction system can fully cover the game accounts of children under 18 is an important evaluation indicator for the pros and cons of the anti-addiction system. If the anti-addiction system cannot fully cover the game accounts of children under 18, it only shows that the system has loopholes and quality defects. In addition to the age range, the system should also fully cover all sub-modules of children's game accounts under 18, such as the payment module for purchasing virtual props, the game application module, and the game chat module. Due to the immature mental development of minors, they cannot make optimal choices on economic, time, and even social issues, so the anti-addiction system should cover any module in the game.

Reasonably establishing the system level to ensure the effectiveness of the identification system: The anti-addiction system should be hierarchical, with perfect verification procedures and verification steps under different circumstances. The hierarchy here is reflected in: under normal circumstances, the verification of the anti-addiction system is face recognition, but if the face verification fails, a more rigorous method than human recognition should be used for identity confirmation; or if the verification exceeds a certain number of times continuously, the game interface cannot be unlocked through any verification method for a period of time, and a perfect appeal mechanism should be established. When the anti-addiction system is not hierarchical, it indicates that the system itself is not perfect and lacks verification logic, so the hierarchy of the anti-addiction system is an important evaluation indicator.

3.1.2 Scope and Depth of Information Resource Development and Utilization

In the link of collecting and processing user information, the anti-addiction system has different degrees of information utilization. Some platforms only collect ID card information and take measures based on age judgment. ID card information, as the most basic information, has insufficient collection depth and cannot be effectively utilized. The anti-addiction system should be flexible and can improve the utilization rate of

information through student status certification, so as to deal with special groups such as minor college students and adult middle school students differently. At the same time, the anti-addiction system should also grasp the scale in collecting user information and should not involve personal privacy and other contents.

3.1.3 System Quality

Ensuring system stability and improving system security: The quality of the anti-addiction system includes many aspects: stability, security, humanization, etc. Stability means that it can stably carry out anti-addiction authentication and inspection under various complex network and operating conditions. At the same time, the anti-addiction system should also have the ability to resist external interference, such as resisting hacker attacks and fixing system vulnerabilities; security mainly involves the protection of user privacy. The real-name authentication system should cooperate with relevant public security departments to ensure the security of users' basic information. At the same time, functions that require cameras, such as face verification and face inspection, should be strictly controlled and evaluated.

Enhancing system humanization and strengthening background operation capabilities: In addition to the above situations, the anti-addiction system is often in the background and is turned on for a long time. It should be ensured that the system is independent from other applications in the background and has the jurisdiction it governs; humanization refers to the adaptation of the system to users' operating habits and psychology. Users often prefer systems that are simple and effective to operate, and the intelligent inspection mechanism should also minimize the impact on users' game experience.

3.1.4 System Confidentiality and Security

System confidentiality - manually signing clauses and setting system permissions: The anti-addiction system should pay attention to the protection of user information resources, and use various security technologies and procedures to protect user information resources from unauthorized access, use, and leakage. Except for legal or government requirements or user consent, the system shall not disclose or reveal user information resources to third parties other than cooperative units without the user's consent. However, disclosure to third parties for the following reasons is excluded: disclosure in accordance with national laws and regulations; disclosure at the request of national judicial organs and other relevant organs in accordance with legal procedures; disclosure to protect the legitimate rights and interests of the system itself or users; disclosure in emergency situations to protect the personal safety of other users and third parties; disclosure authorized by the user or the user's guardian; and provision of the user's personal identity information at the legitimate request of the user's guardian.

System security - using communication encryption and formulating leakage plans: The system shall strictly abide by laws and regulations to protect users' communication secrets and use various security protection measures within a reasonable security level to ensure information security. For example, encryption technologies (such as TLS, SSL) and anonymization processing are used to protect users' personal information. The system platform should establish special management systems, processes, and organizations to ensure information security, such as strictly limiting the scope of personnel accessing information, requiring information accessors to abide by confidentiality obligations, and conducting reviews. In case of security incidents such as personal information leakage, emergency plans should be activated immediately to prevent the expansion of security incidents, and users should be informed through push notifications, announcements, etc.

4. Existing Problems of the System

4.1 Problems of the System Itself: Inflexibility and Inhumane Restrictions

Firstly, for the anti-addiction system itself, it is debatable that it has absolute time restrictions on minors, with age being the only assessment criterion for the anti-addiction system. However, there are indeed minors with super high e-sports talents who cannot get enough training due to age restrictions, and their talents cannot be developed. In this case, the anti-addiction system is somewhat "one-size-fits-all", especially when e-sports has become an Olympic sport, still refusing to allow teenagers with e-sports talents to reasonably increase their usage time, which will make the system design rigid and inhumane.

4.2 Family-level Problems: Superficial Implementation and Failure to Solve Problems Fundamentally

Secondly, for families, since the anti-addiction system is directly aimed at the youth group, parents have less contact with the anti-addiction system, which will make parents have little understanding and inadequate understanding of the anti-addiction system, resulting in dissatisfaction among parents due to lack of understanding, thinking that the system is only a formal restriction or even cannot really prevent addiction. This also leads to the contradictory position that "children think the control is too strict, while parents think the control is too loose".

4.3 Social-level Problems: Gray Areas and Industrial Supervision Loopholes

Finally, from a social perspective, since children's addiction to games cannot be fundamentally solved, and the system has put forward strict restrictions on game usage time, a gray industry chain of renting, borrowing, selling accounts, and even face-swiping on behalf of others has emerged. In addition to strengthening supervision by relevant online shopping platforms from the source, how to strengthen the identity identification and verification of users by the game system itself is also an urgent issue to be discussed, because as long as such a gray industry chain exists, the effect of the anti-addiction system itself will decline to a certain extent.

5. System Improvement Suggestions

5.1 Improving System Quality and Strengthening Supervision (System Itself)

5.1.1 Grading System

The current anti-addiction system makes a clear distinction between minors and adults, with strong restrictions on minors but little restriction on adults. In fact, the minor stage covers a long period, during which minors' personalities and understanding of things will change greatly. Treating all minors "equally" is not in line with the law of the development. Adopting hierarchical management and implementing different degrees of restrictions on minors of different ages can not only restrict minors in the period of physical and mental development, but also take into account the time arrangement of some minors who are nearly adults.

On the other hand, for minors of different ages, major software companies should improve their algorithm capabilities to reasonably push consulting and information suitable for the age group of users. For some game companies, they should design games for a certain age group and advocate or even prohibit users who do not meet the target age group from experiencing the games, so as to reduce the chance of teenagers games unsuitable for their age.

5.1.2 Blockchain Technology

With the help of blockchain ledger technology, user anti-addiction data can be recorded on the chain to realize the centralized and unified management of anti-addiction data for teenagers logging in to all games. All game companies record users' online time in the same ledger and count by day, which can strictly and accurately record and control the time for teenagers to log in to games. Government regulatory

authorities and parents can view relevant on-chain data according to their permissions and take corresponding regulatory measures as appropriate.

5.1.3 Anti-Addiction Verification

The current anti-addiction verification is mainly face-swiping verification, with long verification intervals. Once verified, one can play games for several days or even a week. Such a system may be effective for families who understand the anti-addiction system, but for parents who do not understand the anti-addiction system, their children can ask them to swipe their faces for various reasons, and after parents swipe their faces confusedly, their children can play games for several days. On the one hand, it is indeed because parents do not attach importance to the anti-addiction system; on the other hand, there is a big loophole in the system itself. Regarding the problem of long verification intervals, game companies can increase the frequency of identity verification without affecting the game experience too much, such as fingerprint recognition every 20 to 30 minutes or at shorter intervals. This can well restrict minors from playing games by pretending to be adults. For minors who frequently ask their parents for verification, on the one hand, parents cannot always be around, and on the other hand, frequent verification will also make parents suspicious, which can to a certain extent drive parents to understand the anti-addiction system.

5.2 Enriching Spare-time Life and Setting Correct Examples (Family Level)

Parents are an important part of preventing and treating minors' Internet addiction. Firstly, parents should be cautious about using digital products as rewards, such as promising to buy new digital products or increase the time of using digital products. Secondly, parents should lead their children to enrich their spare-time life, cultivate their interests in various aspects, free their children's attention from the online environment, and create more interesting activity experiences than online games. Then, in daily life, parents should set an example and reasonably control their own online behavior. Furthermore, in the process of using mobile phones, parents should use the Internet as a tool to improve themselves as much as possible, give play to the educational function of the Internet, set an example for their children, and have a subtle impact.

5.3 Abiding by the System Consciously and Grasping the Moral Bottom Line (Social Level)

Schools should help students recognize the value of the Internet, guide primary and secondary school students to participate in various online activities, increase the purpose and sense of meaning of Internet use, cultivate primary and secondary school students' strategies for allocating Internet time, expand the scope and depth of primary and secondary school students' use of the Internet, give full play to the educational function of the Internet, and prevent primary and secondary school students from being addicted to the Internet from the source.

Driven by the "attention economy", most Internet companies retain users by increasing the stickiness of their products, which easily makes primary and secondary school students addicted to the Internet. Therefore, it is urgent to enhance the social responsibility of Internet companies, encourage the development of Internet anti-addiction systems, and improve network management systems including network identity verification systems.

6. Research Focus and Difficulties

6.1 Research Focus

6.1.1 Strictly Implementing Anti-Addiction through Four-in-One Cooperation

Anti-addiction, as a typical social event, requires the joint implementation of the state and all sectors of society. While introducing a series of relevant policies, the state should also step up efforts to crack down on the "gray industry" to ensure the legality of

the industry; all sectors of society also have the responsibility to care for the younger generation, especially various online platforms as the main body, should take the initiative to assume social responsibilities; families, as the closest link to minors, have special significance. To improve the anti-addiction system, every link is indispensable. Only through multi-party cooperation can anti-addiction be implemented. How to coordinate the state, society, families, and online platforms is a key research focus of this subject.

6.1.2 Exploring Efficient Identity Verification Mechanisms

The most basic link of the anti-addiction system is to classify users through the identity verification mechanism. Nowadays, in the face of identity verification, there are illegal merchants engaging in account trading and identity theft in an attempt to avoid this link. The traditional ID card verification method can no longer meet the current needs. Some platforms have begun to use face detection as a verification method and innovate the inspection mechanism, which is worthy of promotion as a new form. However, it also has some privacy-related issues. Identity verification should maintain close contact with public security departments. The deficiencies in the identity verification mechanism in the anti-addiction system involve multiple parties and have complex relationships, which is also a research focus of this subject.

6.2 Research Difficulties

6.2.1 Uneven Platforms and Blocked System Implementation

Different online platforms have different levels of understanding and attention to anti-addiction policies, leading to large differences in anti-addiction systems among various platforms, differences in identity verification mechanisms in anti-addiction systems, and different levels of control over minors by online platforms. There are not only domestic online platforms but also some foreign online platforms in the market. Different policies at home and abroad also lead to very different implementation of anti-addiction.

6.2.2 Rise of Gray Industry and Poor System Effect

The restrictive effect of the anti-addiction system on minors is difficult to generalize. Due to the different anti-addiction systems adopted by different online platforms, as well as differences in minors' dependence on the Internet, personal personalities, family environments and other factors, in addition to the impact of factors such as identity fraud and account reselling in the "gray industry", it is difficult to reflect the restrictive effect of the anti-addiction system on minors through relevant data.

6.2.3 Inconsistent Implementation Standards and Difficult System Supervision

Facing the current situation of the anti-addiction system, there are still many deficiencies. For Chinese teenagers, both local and overseas online platforms should have the same implementation standards for anti-addiction to facilitate unified supervision and inspection. The identity verification mechanism should also be upgraded, adhering to real-name system for individuals, and eliminating behaviors such as parents "swiping faces on behalf of others" and using others' identities.

7. Research Ideas and Methods

7.1 Research Ideas

First stage: Research background and significance, domestic and foreign research status, and theories related to the online anti-addiction system.

Second stage: Collect anti-addiction system data, analyze factors affecting the implementation of the anti-addiction system, construct an evaluation index system for the implementation of the anti-addiction system, and calculate and analyze using the analytic hierarchy process.

Third stage: Apply relevant data and put forward suggestions and measures for improving the anti-addiction system.

7.2 Main Research Methods

Literature research method: Focusing on the evaluation of the anti-addiction system of online platforms studied in this paper, by collecting relevant materials and reading literature on specific measures and evaluation of the anti-addiction system, such as the specific implementation methods of the domestic anti-addiction system, relevant theories of the analytic hierarchy process, and research on evaluation methods of the anti-addiction system, we have accurately grasped the domestic and foreign research status, laying a solid theoretical foundation for this research.

Combination of qualitative and quantitative analysis: Qualitative methods are used to analyze the particularity of the anti-addiction system of online platforms, establish an index system for the anti-addiction system, and quantitative analysis methods are used to calculate the weights of the index system.

Empirical research method: On the basis of the previous theoretical research, clarify the evaluation indicators and calculation methods of the online minor anti-addiction system, apply them to practice, and put forward corresponding improvement strategies according to the evaluation results.

Comparative analysis method: In constructing the evaluation index system for online minor anti-addiction, combined with the relevant characteristics of the anti-addiction system, analyze and compare relevant indicators one by one, and select relatively representative indicators, so as to make the calculated results more objective and representative.

References

- [1] Shao Yunyun, Xu Sheng, Chen Jia. Causes, Outcomes and Intervention Effects of Adolescent Internet Addiction[J]. Chinese Journal of School Health, 2020(02).
- [2] Wang Qin. Analysis on the Necessity and Feasibility of Adolescent Anti-Addiction System[D]. Journal of News Research, Vol.10, No.15. Nanchang University, 2019.
- [3] Wang Yuan. Legislative Approach to the Protection of Minors' Online Personal Information in China - Reflection on the "Guardian or Parental Consent" Mechanism[J]. Journal of Xi'an Jiaotong University (Social Sciences Edition), 2019(6).
- [4] Cyberspace Administration of the People's Republic of China. The 41st Statistical Report on Internet Development in China.
- [5] Yin Xiayun, Yu Binyang, Zhao Wenye. Adolescent Online Game Addiction and Its Intervention: A Perspective of Family Risks[J]. Contemporary Educational Theory and Practice, 2019(05).
- [6] Wang Qiong, Xiao Tao, Liu Huiying, Hu Wei. The Relationship between Parental Rejection and Internet Addiction among Left-behind Children: A Moderated Mediation Model[J]. Psychological Development and Education, 2019(06).
- [7] Li Baomin. Getting out of Addiction: Improving the Key Abilities of the "Internet Generation"[N]. China Education Daily, 2018-08-22(003).
- [8] Shen Caixia. Types of Adolescent Online Activities and Psychosocial Adaptation[J]. China Educational Technology, 2018(12).
- [9] Zhao Baobao, Jin Cancan, Zou Hong. The Relationship between Adolescent Parent-Child Relationship, Negative Social Adaptation and Internet Addiction: A Mediated Moderation Effect[J]. Psychological Development and Education, 2018(03).
- [10] Sun Sirui, Liu Yana. Research on the Problems of China's Online Game Regulatory Model[J]. Theory Monthly, 2015(10).

- [11] Ning Li, Zhang Huimin, Tao Ran, Gao Wenbin. A Study on the Relationship between Self-Esteem and Family Factors in Internet Addicts[J]. Chinese Journal of Drug Dependence, 2014(05).