The Digital Resolution Mechanism for Protecting the Online Rights and Interests of Minors - Taking the Design of the "Health Protection" APP as a Starting Point [1]

Zhang Qi, Liu Yuruo, Luo Dongxu, Sun Yue

School of Law, Beijing Wuzi University, Beijing, China

ABSTRACT

With the advent of the digital age, illegal infringements in cyberspace have increasingly become a focal point of social attention, especially regarding the protection of minors, who are considered a vulnerable group. To gain a deeper understanding of this issue, we conducted a series of field investigations, including extensive questionnaire surveys and in-depth personal interviews. We also integrated these findings with the existing academic research for a more comprehensive analysis. Ultimately, we proposed designing a "health protection" APP as a solution mechanism, which incorporates innovative and upgraded functions based on the features of the National Anti-Fraud Center APP. This aims to more effectively address network rights infringements and safeguard the cybersecurity of minors.

KEYWORDS: *In the digital age, minors, rights protection, health protection app, functions*

1. INTRODUCTION

Nowadays, the Internet is developing vigorously in the digital age. Cyberspace and real space are deeply integrated. While the Internet brings efficiency and convenience to our daily lives, it also quietly infringes upon our legitimate rights and interests[1]. In recent years, the emergence of personal information leakage, network fraud, cyber violence, and other incidents has been unending, making the protection of network security an urgent matter. In view of the illegal infringements in cyberspace, minors, with a network penetration rate as high as 97.2 percent, are key subjects for protection. On the one hand, due to the lack of discrimination, self-control, and legal awareness among minors, they are easily induced and misled by harmful information; therefore, they are inadvertently exposed to the risk of illegal infringement and become innocent victims of damage to their legitimate rights and interests. On the other hand, minors are not only the "indigenous people" of the Internet but also important participants and promoters of the future network development. Therefore, we have the responsibility to protect their legitimate rights and interests and improve their digital literacy. We should ensure that these "masters of the future network" have the core capabilities needed for the development of the times and reserve corresponding strength for the long-term development of the motherland and international competitiveness.

To create a network environment more conducive to the physical and mental health of minors, many studies have deeply analyzed the network security protection mechanisms for minors. The views of domestic scholars are mostly focused on the 3 aspects: the first is to improve the laws and regulations and the government supervision system, and the second is to build an effective mechanism for multi-subject participation and joint governance, and finally to strengthen network literacy education. Hu Rui believes that legislation should be passed to clarify the principles of the collection and use of youth network information, standardize network audio and video services, govern the ecology of network information content, restrict youth online games, implement Weibo real-name management and other measures, and advocate multi-party collaborative governance to protect youth Network security promotes its healthy growth and[2]. Kang Yatong proposed that measures such as establishing a scientific management system and a systematic and efficient supervision system, forming an effective mechanism for multi-subject participation in joint governance, and setting up effective relief measures should be taken to control the problem of youth Internet addiction, including establishing a system of network classification, clarifying the responsibilities and obligations of each subject, and strengthening the legal responsibilities [3]of network operators. Wang Jianmin and Ni Guifang proposed that the government should strengthen legislation and law enforcement, strengthen self-discipline and self-control on the network platform, strengthen the cultivation of network literacy by the education department, create a healthy environment for the use of the network by families, and establish self-discipline and self-protection awareness among minors to protect the of their rights and interests [4]in cyberspace. Ji Weimin put forward a policy proposal to establish a regulatory system for the protection of the use of the Internet for minors with Chinese characteristics. Through the systematic construction of Internet mechanisms, literacy and laws and regulations, literacy education is carried out based on the characteristics of regions and populations, rights and responsibilities are clarified, a multi-sectoral collaboration and linkage mechanism is established, the influence of network popular culture is emphasized, and the research perspective is expanded to strengthen basic research[5].

With the in-depth study by scholars and the high attention of the whole society to the network security of minors, the state has promulgated the first comprehensive law specifically for the network protection of minors -- the Regulations on the Network Protection of Minors (hereinafter referred to as the Regulations). The Regulation clarifies the responsibilities, obligations and protection strategies of the parties through legal form. However, the regulations face multiple challenges in implementation. First, identity verification is difficult, as minors often borrow others' information or use hacking methods to evade supervision. Second, platform supervision is limited due to a lack of macro management, and the content push mechanism encourages addiction. The 3 is that the proliferation of online content and technological updates bring pressure to supervision. The 4 is the lack of parental supervision, busy work and lack of network knowledge make it difficult to effectively guide children to the Internet. In view of this, it is necessary to conduct an in-depth analysis of the above-mentioned practical problems and find effective solutions in order to better play the practical role of the "Regulations.

In the context of the digital age, in view of the infringement of minors' network rights and interests, this paper should not simply adopt the traditional strategy of "giving up food for fear of choking", that is, to separate minors from the network. On the contrary, this paper should adopt a digital solution mechanism by designing a "health protection" APP and supervise the platform through it to achieve macro-overall planning and ensure that the legitimate rights and interests of minors in cyberspace are protected comprehensively and thoroughly. We should ensure that the "Regulations" can achieve the expected ideal effect in actual implementation. The "Health Protection" APP can not only effectively filter the bad content in the network and build a pure network environment for minors, but also integrate rich network literacy education resources to guide them to learn to distinguish the authenticity of information and cultivate healthy network usage habits. This paper hopes that, in this way, minors can not only enjoy the conveniences brought by science and technology but also avoid the troubles of illegal infringement, thus achieving simultaneous improvement in healthy growth and digital literacy.

2. Legitimacy Analysis of "Health Protection" APP Empowering Minors' Network Rights Protection

2.1. The "Health Protection" APP addresses the objective practical needs of protecting the online rights and interests of minors

In order to gain a more realistic and accurate understanding of the current situation of minors being illegally infringed upon in the network and people's views on the design of the "health protection" APP,

this paper conducts a questionnaire survey and in-depth interviews to obtain the first-hand objective survey data. At the same time, relevant domestic cases are also combined as auxiliary data for analysis.

2.1.1. Group Perspective of Minors' Network Security

This questionnaire survey targets three groups: minors, childless adults, and parents of children. It aims to collect and analyze their feedback to comprehensively understand the views of different stakeholders on the protection of minors' network security.

In the survey of minors, participants were divided into four groups based on their civil capacity and school stage. The survey results show that the penetration rate of smart phones among minors is extremely high, and entertainment and leisure content dominates online activities (Figure 1). However, this 1 trend is also accompanied by hidden worries. As many as 37.5 percent of minors have suffered infringement of their rights and interests on the Internet, and the problem of Internet addiction has become a chronic disease that needs to be solved urgently. Although they have successfully obtained their active attention in legal science popularization, the single and boring form has become an important factor hindering in-depth learning, which reflects the urgency of educational innovation and personalized needs. This situation requires us to reflect deeply: while enjoying the digital dividend, we must consider how to build an efficient protection network and guide minors to surf the Internet in a healthy manner.

In the survey of childless adults, their legitimate rights and interests in cyberspace have also been generally violated to varying degrees (Figure 2). This

1 finding further emphasizes the importance and complexity of personal rights protection in the online environment. Regarding the current online platform's views on the enforcement of the Minor Internet Protection Law, the survey results show a worrying phenomenon: about 51.72 percent of people said that the enforcement is average, showing that the effect of law enforcement has not been generally recognized by the society; particularly, 18.97 percent of the respondents said they did not understand the content of the law, which reflects the lack of legal publicity and education. These data directly point out that the law still needs to be strengthened in order to maintain its authority and effectiveness.

In the survey of parents of adults with children, 88.46 per cent of parents said that their children's daily online time should be controlled within two hours, with 30.77 per cent saying that it should be controlled within half an hour, highlighting parents' deep concern about their children's healthy online time. For the main activities of their children on the Internet, more parents think that they are learning and querying materials (Figure 3). Compared with Figure 1and Figure 3, parents do not fully understand the activities of minors on the Internet. This information asymmetry often makes it difficult for parents to detect and protect their children from the threat of infringement of network rights and interests in time. Additionally, 40.74 percent of parents express a desire to use software that may infringe on their children's privacy to better monitor their online activities. This reflects the struggle and compromise between parents' safety and respect for their children's privacy, and suggests that we should pay more attention to the protection and balance of user privacy when designing relevant software and technology.
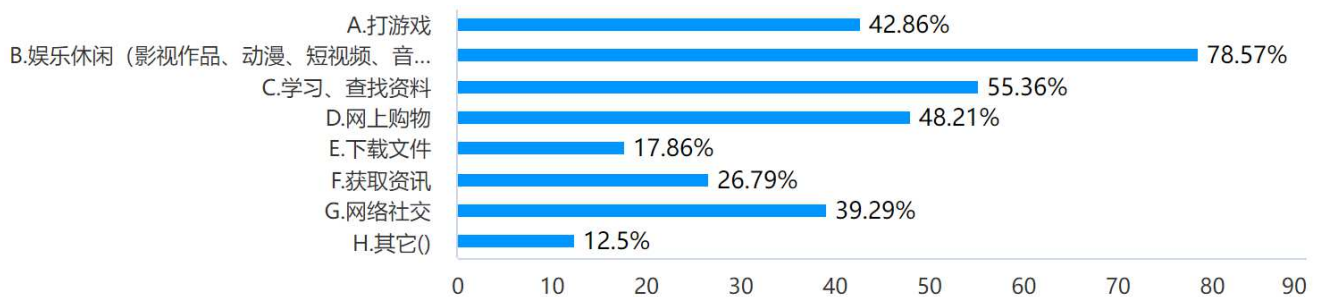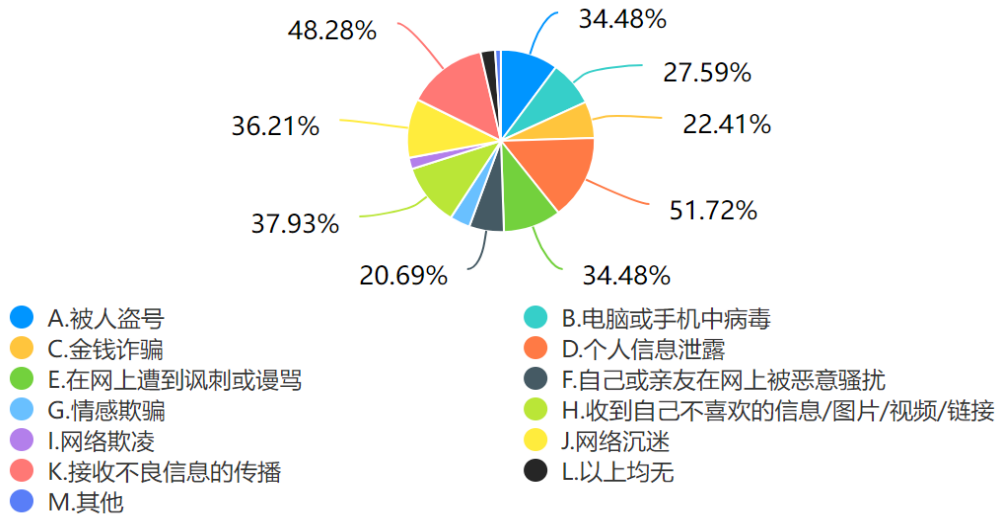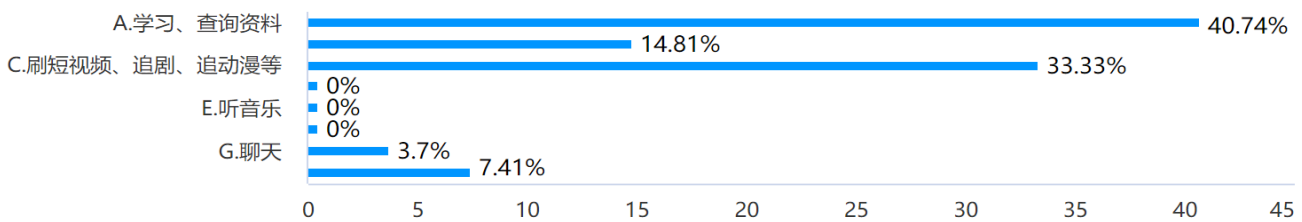

Figure 1 Proportion of content types browsed by minors on the internet

Figure 2 Cases of Online Rights Infringement experienced by childless adults (Multiple Choice of Types)

Figure 3 Current understanding of the main content of children's online browsing by adult parents with children

In order to understand the satisfaction of people with different identities regarding the design of the "health protection" APP function, targeted questions were set up in the questionnaire survey and in-depth interviews. The conclusion of the comprehensive analysis is that the public is generally highly satisfied with the current design of the "health protection" APP function, and has strong expectations for the optimization and expansion of future functions. This 1 positive feedback is not only an affirmation of our current efforts, but also a powerful motivation for us to continue to move forward and innovate.

2.1.2. A Case Study on the Network Security of Minors

In order to have a more comprehensive understanding of the network security of minors, after collecting a large number of cases about the network security of minors, it is found that there are many cases of disputes over large-sum recharge and reward of minors in online games, online live broadcast and other platforms. according to the White Paper on the Judicial Protection of minors on the Internet issued by the Beijing Internet Court, it has been implemented since the revision of the Law on the Protection of minors (June 2021 to May 2024), A total of 597 civil cases involving minors were accepted. Among them, there were 407 cases of network service contract disputes, accounting for 68.2 per cent; 75 cases of network tort liability disputes, accounting for 12.6 per

cent; and 115 cases of information network sales contract disputes, accounting for 19.2 per cent [6]of the. The reason behind it is not only the minors' addiction to the online world, but also the parents' own lack of network literacy, and there is a lack [7]of in guiding and supervising children to use the Internet. In addition, in recent years, the main body of the crime of helping information network criminal activities (hereinafter referred to as "the crime of helping the letter") is significantly inclined to minors. For this reason, in the questionnaire survey, a topic of the crime of helping minors and their parents was set up. A small number of them will fall into the "trap" of crime because of their immediate interests. This shows that my country still needs to strengthen legal knowledge. Popularization and publicity and education work, especially for minors and their parents, to enhance the legal security awareness and risk prevention capabilities of the whole society.

2.1.3. Protection Strategy of Minors' Network Security

Through the practical exploration of online and offline integration, we are deeply aware that the security of minors in cyberspace is still facing severe challenges. Therefore, we must strengthen the supervision and management of the network platform. At the same time, a more novel way should be adopted to popularize legal knowledge, so as to stimulate the learning enthusiasm of minors,

effectively improve their network literacy, and provide a solid guarantee for the prevention of cybercrime. In addition, we should strengthen the communication between minors and guardians to ensure that guardians can detect and take effective protection measures in time when they encounter network rights infringement. In view of the above problems, this paper designs and launches the idea of the "health protection" APP, which is designed to use a digital solution mechanism to protect the network security of minors. People from all walks of life highly appreciate this and are full of expectations, hoping to be launched as soon as possible to create a clearer and safer network environment for children.

2.2. The Theoretical Foundation Construction of "Health Protection" APP Enabling Minors' Network Rights Protection

At present, the issue of minors' network security has become one of the "social hot spots", which has aroused deep concern and extensive discussion from all walks of life. These 1 trends have directly promoted the vigorous development of academic research in this field. These research results not only build a solid basic research framework, but also profoundly reveal the multi-dimensional exploration and extensive influence in this field.

Among the divergent school views, a core point of view has gradually condensed into a broad consensus on the issue of minors' network security protection: while paying attention to minors' right to protection, we should also pay attention to their right to development ". The right to protection means that all sectors of society have the obligation to take various measures to prevent minors from being violated [8] when facing network risks. The right to development of minors means that minors need to have network literacy and digital skills [8] from the perspective of their growth and future development. Some scholars put forward the 1 concept of "balanced protection of minors", that is, the balance of minors' protection right and development right. He pointed out that the two are equally important in cyberspace, and it is necessary to seek an appropriate coordinated balance[9].

The right to protection is the basic right enjoyed by minors under the Law on the Protection of Minors. As early as 1959, the Declaration of the Rights of the Child adopted by the United Nations clarified the basic rights of minors that should be specially protected. The Convention on the Rights of the Child adopted in 1989 further enriches the rights content [10] of minors' right to protection. although people have paid attention to this fundamental right for a long time, it has not been fully implemented in the field of

cyberspace. After procuratorial cases, it is found that the means of using the Internet to infringe upon minors are complex and diverse, and the ways are constantly renovated; some minors come into contact with violence, vulgarity and other bad information through the Internet, forming unhealthy values, and even [11] to the road of crime because of their addiction to the Internet. , it is obvious that the spread of network infringement is far more than the minors themselves, and its impact may also radiate to the rights and interests of families and even wider social members. In view of this, in order to prevent the occurrence of harm, we must take effective measures to ensure that the right of protection of minors is truly realized and prevent them from falling into the harm of the network. In this regard, my country's "Regulations on the Protection of Minors on the Internet", which has been officially implemented on January 1, 2024, has established a community [12] for the protection of minors on the Internet, including families, schools, relevant government departments, and network service providers. The principle of "most beneficial to minors" regulates the rights and obligations of all parties and the protection responsibility of minors, which reflects the importance of our country to the protection of minors.

In recent years, the right to development has been regarded by human rights scholars as an individual right that has the same important status as the right to life. The proposal of minors' right to development in cyberspace is to ensure that minors can avoid potential negative factors in the network environment and enjoy positive and healthy growth conditions at the same time. Some scholars have specifically stated that "the right to development of minors in cyberspace can be more clearly defined as: minors, as the main body participating in cyberspace, promote social and cultural development in cyberspace and enjoy high-quality network achievements as a basic human right [13]." However, at this stage, the emergence of phenomena such as "digital divide [2]", "algorithm recommend [3]", and "cocoon house effect" has caused this basic human right to be violated.

---

[2] The digital divide refers to the gap between the information-rich and the information-poor, depicting the disparities in access to and utilization of information and communication technologies among various social groups, stemming from economic, educational, geographical, or other social structural factors.

[3] Algorithmic recommendation is a technology that automatically recommends content to users based on their behavior and preferences through algorithms. It predicts information that users may be interested in by analyzing their historical behavior data, such as browsing history, search history, and click preferences, and makes personalized recommendations based on this.

Minors should have received multiple information and fully understood the world through powerful information technology, formed their own values under the collision of views, and continuously improved themselves. However, due to the improper application of algorithms, they are endlessly homogenized. Content breeding leads to narrow vision and solidified [14]concept. The algorithm's accurate grasp of user interests will undoubtedly enhance this dependence, and under such a cycle, minors may become more and more difficult to extricate themselves, and eventually fall into the whirlpool of technology and information cocoon, which will hinder minors from exercising their right to development. In view of this, there is an urgent need to improve the "network literacy [4]" and "digital skills[5]" of minors. Good network literacy can help them screen valuable information in the ocean of information, avoid being misled, and protect themselves. Skilled digital skills can help minors use digital resources more effectively and better adapt to this information age, even bring more innovation and change to the society. Of course, this requires the education and training of schools, the correct guidance of parents and the fulfillment of social responsibilities of enterprises to support the realization of minors' right to development.

The protection of minors' network security should not only improve the immediate well-being of minors, but also train minors to develop good network usage habits [15]in a planned way. Therefore, in the design of the "health protection" APP digital solution mechanism, we should always adhere to the concept of "keeping pace with the rights of protection and development of minors", and fully implement the principle of being most beneficial to minors. Adhere to the needs of minors, rather than according to the adult's self-perspective to consider, otherwise it will lead to the illusion of minors' interest argument, false [16]of. In order to ensure the implementation of the two basic rights of minors in the network environment, the "health protection" APP designed in this paper will adopt dynamic supervision and knowledge popularization. The system implements accurate risk assessment and early warning for specific hot areas of interest to minors. When

abnormal trends that harm people or property occur, dynamic tracking and supervision will be carried out, and guardians will be notified to take timely protection measures when necessary., And push corresponding psychological counseling knowledge and coping strategy skills for minors to help minors deal with similar emergencies alone in the future. In addition, in daily life, it will also push scientific, systematic and effective network literacy knowledge and digital skills training [17]for minors, so as to cultivate their ability to adapt to life in cyberspace. In short, the design of the "Health Protection" APP not only focuses on the timely protection of minors' network security, but also focuses on the improvement of long-term network literacy and digital skills, so as to provide a clean and healthy network environment for minors and promote them to thrive.

3. Analysis on the Realization Mechanism of "Health Protection" APP Enabling Minors' Network Rights and Interests Protection

3.1. Operation Basis of "Health Protection" APP Mechanism

This paper aims to design a "health protection" APP to ensure the realization of the goal of keeping pace with the network security and development ability of minors. This article will take the physical and mental health of minors as the core, fully implement the principle of being most beneficial to minors, and reduce the possibility of minors suffering from illegal infringement from the root.

This app designs user real-name authentication when logging in, and needs to bind at least guardian. At the same time, it collects the guardian's phone number and fingerprint, and provides a dual mechanism of verification code and guardian fingerprint sent to the guardian's mobile phone when logging out or uninstalling the app. In addition, the installation of this APP will automatically mark the end product user as a minor, which can effectively solve the problem of difficult identification. In this paper, six innovative functions and six upgrade functions are designed.

3.1.1. innovative function

1. Sensitive vocabulary supervision system. The system will block words that are not conducive to the physical and mental health of minors. In addition, when minors search for sensitive words such as depression, despair and self-injury in the network environment, they will not only strengthen the supervision of their browsing content, but also provide psychological assistance hotlines and push psychological counseling and other knowledge at the same time, so as to ensure

---

[4] Digital literacy refers to the comprehensive scientific skills and cultural literacy of individuals who can quickly and effectively discover and acquire information, evaluate information, integrate information, and communicate information using information technology means and methods in the digital environment.

[5] Digital skills refer to the ability of individuals to utilize digital technology resources in a digital environment for information acquisition, processing, creation, communication, and security assurance.

the actual implementation of minors' right to protection.

2. Anti-addiction system. The content browsed by minors of different ages is screened in layers, and content that does not meet their age and intelligence is intercepted to prevent "people with intentions" from using algorithm recommend to induce minors to indulge in the Internet. When it is detected that a minor uses a mobile phone to browse continuously for more than half an hour, a rest warning will be automatically triggered. If the single browsing time accumulates to two hours, it will be sent to the guardian in the form of a short message to warn the child of the possibility of addiction to the Internet and encourage communication with him.

3. Game time and recharge supervision system. In response to the notice on preventing minors from indulging in online games issued by the State Press and publication Administration, "all online game enterprises can only provide one-hour service to minors from 20:00 to 21:00 on Fridays, Saturdays, Sundays and legal holidays, and are not allowed to provide online game services to minors in any form at other times." this system will identify the game software in mobile phones, if the user opens the game-related software during non-game time, measures will be taken to force the offline. "Online game companies shall not provide game payment services for users under the age of 8; for users over the age of 8 and under the age of 16, the single recharge amount shall not exceed RMB 50, and the monthly recharge amount shall not exceed RMB 200; 16 For users over the age of 18, the single recharge amount shall not exceed RMB 100, and the monthly recharge amount shall not exceed RMB [18]400." If the minor game recharge exceeds the amount specified in the notice, it will not be able to recharge, and inform the guardian to pay attention to the child's game consumption behavior in the form of SMS.

4. guardian binding system. The system is linked to most systems and will send text messages that minors trigger other systems for guardians bound when app logs in. The system is closely connected with the sensitive vocabulary system. When minors frequently search for sensitive vocabulary recently, the system will send it to the guardian in the form of text messages to remind the guardian to pay attention to the physical and mental health of minors in the near future, and add some relevant sensitive vocabulary. Corresponding psychological counseling

knowledge. The system will regularly push carefully compiled network professional guidance knowledge to the guardian to improve the guardian's own network literacy.

5. Personalized early warning system. The system can implement more accurate early warning and monitoring strategies according to the unique interests and preferences of users. For example, if the system recognizes that a minor has a high interest in the game, it will pay more attention to whether the minor has illegal infringement during the game.

6. Legal science popularization system. In view of the problems of underage network bullying, virtual violence, network fraud and other issues, the content of popular science strictly abides by Article 21 of the regulations, and the form of popular science is also more child-oriented, in the form of some videos, animations, cartoons and other forms, so as to enhance the browsing interest of minors. In addition, some game-based interactive questions and answers can be added to improve their online literacy and digital skills.

3.1.2. Upgrade Features

The six upgraded functions designed for this project are: fraud early warning, APP self-examination, risk inquiry, I want to report, audio recording and report assistant. These functions are upgraded with reference to the functions of the International Anti-Fraud Center APP. Fraud early warning refers to real-time monitoring of communication information [19]such as incoming calls and text messages to identify and warn of potential frauds that are easy to appear in minors. APP self-examination refers to scanning applications and installation packages installed in mobile phones, detecting and removing potential malicious software or fraudulent apps[19], and at the same time, preventing problems such as the disclosure of minors' personal privacy information. Risk inquiry refers to whether it is involved in fraud [19]when encountering strange and suspicious payment accounts, IP/website addresses and QQ/WeChat, so as to ensure that minors will not be attacked by illegal infringers. I want to report means that users can directly report suspected fraud information through APP, provide clues for the police, and can also report the network platform that provides bad information to strengthen the supervision [19]of regulatory authorities. Audio recording refers to the convenience of users to record evidence such as voice and video related to fraud for reporting or reporting[19]. The report assistant refers to the of assisting users to submit evidence and information related to fraud and improve the efficiency [19]of reporting. These functions are

upgraded, which not only enhances minors' self-protection ability, but also more in line with their actual needs, providing them with more comprehensive special protection.

The design concept of "Health Protection" APP focuses on the deep-seated needs of minors' network security, and builds a comprehensive network protection barrier for minors through a series of operating bases of innovative functions and upgraded functions.

3.2. "Health Protection" APP Mechanism Operation Guarantee

The "Health Protection" APP is designed to build an efficient, collaborative, safe and reliable comprehensive protection platform, and build a solid protection fortress for the growth of minors. In order to ensure the efficient operation of a series of functions, it will realize comprehensive operation guarantee from multiple dimensions.

From the perspective of legal protection, the operation of this APP will strictly abide by and implement the relevant laws and regulations on the network protection of minors, such as the Law on the Protection of minors, the regulations on the Network Protection of minors and the regulations on the Management of Mobile Internet Application Information Services, etc., to enhance the sense of security of minors in cyberspace.

From the perspective of technical support, my country's identity authentication, privacy protection, and continuous monitoring and evaluation technologies have made significant progress. These technologies have reached a high degree of maturity, laying a solid technical foundation for the security protection of cyberspace. In addition, some of the functional design of this APP draws on the functions of the National Anti-Fraud Center APP and has been upgraded accordingly, aiming to build a stronger line of defense and significantly reduce the risk of minors encountering online fraud and bad information. Therefore, in the research and development stage, this APP can be based on the National Anti-Fraud Center APP, and new upgrades and improvements can be made on its basis, while integrating innovative functions to achieve more efficient and comprehensive protection of minors' network security. aims. Furthermore, but also through the universities or research institutes jointly carry out specific scientific research projects, deepen the study of minors network rights protection, promote the "health protection" APP technology innovation.

From the perspective of security, this APP should be produced by the state and can be jointly controlled by the Central Network Information Office and the State Council's Unprotected Group. On the one hand, based on the official authority, users can trust the information and services they provide more during use, and it can also protect the personal privacy information of minors from being leaked. On the other hand, the official can timely insight into the network security problems of minors, and obtain the first-hand information of minors' network information, which not only helps to protect the safety of minors in time, but also promotes the improvement of relevant laws and regulations and the innovation and progress of science and technology. In addition, APP will regularly carry out security audits and risk assessments to detect and repair potential security vulnerabilities and risks to ensure APP security and stability.

From the perspective of privacy protection, this APP is mainly controlled by state agencies. When collecting user privacy information, it will strictly abide by relevant national laws and regulations, and clearly define the scope of application. At the same time, it adopts advanced security systems to protect the storage security of personal privacy. In addition, this APP pays special attention to the privacy protection of minors. It requires that the first login should be accompanied by the parents to obtain the personal information of minors, and obtain the consent of parents through SMS in the subsequent information collection, so as to ensure the parents' right to know and consent in the information collection process, and provide a safe and compliant privacy protection environment for minors.

From the perspective of supervision and guarantee, the design of "health protection" APP is not completely superior to other network platforms and software, but provides bottom line protection in terms of physical and mental health protection of minors according to China's laws and regulations. When using the network normally, this APP will not interfere, and will try its best to protect minors' network development right, The network products provide special services and care for minors. When there is an abnormality, the "Health Protection" APP will take necessary measures to prevent minors from being illegally violated. In terms of promoting the physical and mental health of minors, it is still necessary to encourage network information service providers to design and research products that are conducive to the growth and development of minors, and strive to form a self-discipline consensus in the entire industry, and jointly promote the in-depth development of minors' network protection.

From the perspective of financial security, this APP can ensure the main operating funds by applying for special funds and obtaining government subsidies, so as to achieve an independent, fair and effective role in protecting minors' network security without interference from other factors. At the same time, the introduction of incentive policies such as honor awards and qualification assessment can not only encourage network operators to assume the social responsibility of ensuring the network security of minors, but also reduce the supervision cost burden of "health protection" APP. In the process of publicity, seeking the support of public welfare organizations will not only help to improve the installation rate of APP, but also enhance the society's attention to the network security of minors.

From the perspective of promotion and protection, after the APP is officially put into use, it can join hands with schools to carry out publicity activities with the theme of entering the campus, integrate selected popular science video content into the school's online literacy courses or lectures, and encourage school teachers and students to brainstorm and submit works on the protection of minors' online rights and interests. At the same time, the "Health Protection" APP can also cooperate with parent organizations to hold regular parent education seminars to provide professional cyber security knowledge training to help parents understand how to protect the cyber security of minors in the family environment. In addition, the APP can cooperate with various enterprises to carry out activities such as downloading APP to send stationery and books to attract users to download and install, which not only improves the installation rate of APP, but also enhances the brand awareness of merchants to achieve win-win results.

In general, the "health protection" APP design is an important measure to respond to the needs of the times and protect the rights and interests of minors' network security. It not only provides a safe and reliable network environment for minors through multiple guarantees such as law, technology, official authority, and industry self-discipline, but also promotes the entire society's attention and investment in minors' network security issues, and jointly builds a healthier, Active cyberspace.

3.3. Operational advantages of "health protection" APP mechanism

The design of the "Health Protection" APP represents a perfect combination of dynamic defense and active service, creating a safe harbor for minors in cyberspace. The original intention of the "Health Protection" APP design is to reduce the illegal infringement of minors from the root, and to realize this original intention from the 3 aspects.

First of all, for minors themselves, this app has designed personalized legal science popularization, aiming to allow minors to naturally master network security knowledge in a relaxed and happy atmosphere through lively and interesting forms. This process not only enhances their awareness of network security, but also improves their digital skills and literacy imperceptibly, contributing to their competitiveness in the network society in the future.

Secondly, from the aspect of guardian guardianship, based on the results of the questionnaire survey, it can be found that parents' understanding of children's use of web browsing content is biased in cognition from the real web browsing content of minors. This app can immediately feedback to parents the potential problems and challenges of minors in the use of the Internet, ensuring that parents can respond quickly and effectively fulfill their first responsible person's supervision obligations[20]. It is not only a window for parents to understand their children's online world, but also a bridge to promote parent-child communication and enhance guardianship ability, help parents understand and guide minors more effectively, and jointly create a safer and healthier network environment. help minors grow up healthily.

Finally, from the aspect of "health protection" APP itself, the functions of risk self-examination, personalized early warning, fraud early warning and other functions designed by this app can timely capture the infringement of potential network rights and interests and prevent the infringement of minors' network rights and interests. moreover, the anti-addiction system encourages children to temporarily put down their devices, look away from the screen and pay attention to the beauty of the real world, while guiding minors to consciously form good eye habits, they are also encouraged to inject more energy into the real world. The establishment of sensitive vocabulary is to send care and assistance to minors in the shortest time when their hearts are traumatized, lead them to face the challenges in front of them, deeply understand the value of life, and teach them to be in the stormy life. Look for light and tenacity in the journey of life, and move forward bravely.

In a word, the meaning of designing "health protection" APP is far more than building a solid line of defense against the infringement of network rights and interests. It is also actively guiding minors to grow up healthily in the network world and cultivating them to become citizens of the new era with high network literacy. This paper is committed to protecting the privacy of minors, while maximizing

the scope of their positive activities in cyberspace, always adhering to the principle of "maximizing the interests of minors", and escorting their online journey. Not only that, in the technical implementation level, "health protection" APP also shows extraordinary feasibility and efficiency. This project is based on the National Anti-Fraud Center app, which not only inherits its mature technical framework and protection strategy, but also carries out targeted optimization and innovation on this basis. This research and development model based on successful experience not only accelerates the research and development process of the project, but also ensures the excellent performance of the "health protection" APP in terms of functional perfection, user experience and safety protection, and provides a strong guarantee for its smooth landing and effective function in the future.

4. Summary

This project research is rooted in the wave of the digital age, with the core of protecting the physical and mental health of minors, presenting a design research for the production of "Health Protection-Minor Edition" APP. Through hands-on practice and research, we understand the objective needs of the protection of the legitimate rights and interests of minors in cyberspace. According to detailed data analysis and user insight, at the same time, based on practical needs and reasonable theoretical support, this paper designs a variety of functions to build a safe, healthy and clear network environment space. These functions can not only effectively resist network risks, but also focus on cultivating minors' network literacy, guiding them to learn to think rationally and protect themselves in the network world, and finally grow into responsible and literate citizens in the digital age.

Fund Project

References

[1] Chang, H. R., & Zeng, M. (2024, October 29). Fasten the "Security Button" of Minors' Network. WeChat Public Number.

[2] Hu, R. (2021). Legal Analysis of Youth Social Network Security: Protection, Guarantee and Supervision. Beijing Youth Studies, 30(4), 44-49.

[3] Kang, Y. T. (2019). A Review of Adolescent Internet Addiction. Chinese Youth Social Sciences, 38(6), 130-135. https://doi.org/10.16034/j.cnki.10-1318/c.2019.06.019.

[4] Wang, J. M., & Ni, G. F. (2020). Research on the Protection of Minors' Rights and Interests in Cyberspace. Research on the Prevention of Juvenile Delinquency, (3), 83-89.

[5] Ji, W. M. (2019). Establishing a Regulation System for the Protection of Internet Use by Minors with Chinese Characteristics. Youth Exploration, (4), 5-16. https://doi.org/10.13583/J.Cnki.issn1004-3780.2019.04.001.

[6] Beijing Internet Court. (2024, May 31). Beijing Internet Court Releases White Paper on Judicial Protection of Minors on Internet. Retrieved October 8, 2024, from https://www.chinacourt.org/article/detail/2024/05/id/7965728.shtml.

[7] Net letter Jiangmen. (2022, May 27). For these typical cases of online disputes, minors and parents should look at. Retrieved August 10, 2024, from https://www.thepaper.cn/newsDetail_forward_18313984.

[8] Ye, Z. (2023, November 10). Building a Legal Defense Line for Minors' Network Protection. People's Daily (Overseas Edition), p. 008.

[9] Li, H. S., & Zhu, J. B. (2024). The Balanced Approach of Minors' Right to Development and Network Protection from the Perspective of Platform. Juvenile Delinquency, (2), 126-137.

[10] CCTV Network. (2024, March 1). Supreme Inspection Releases 5 Guiding Cases for Minor Network Protection. Retrieved October 8, 2024, from. https://doi.org/10.12677/OJLS.2023.112114.

[11] CCTV Network. (2024, March 1). Supreme Inspection Releases 5 Guiding Cases for Minor Network Protection. Retrieved October 8, 2024, from https://news.cctv.com/2024/03/01/ARTIIN6FhukaQGYGLvp9ThGf240301.shtml.

[12] CCTV Network. (2023, October 25). Three Major Backgrounds, Two Major Topics and Six Highlights-Experts Explain in detail the Regulations on the Protection of Minors' Network. Retrieved October 8, 2024, from https://news.cctv.com/2023/10/25/ARTIKbLHXReYV7uQZTcsxNvP231025.shtml.

[13] Liu, Y. H., & Yang, X. (2021). A Probe into

Minors' Right to Development in Cyberspace. Journal of North University of China (Social Science Edition), 37(1), 22-27.

[14] Yang, X., & Li, F. (2023). On the Network Protection of Minors from the Perspective of Algorithm Governance. Journal of Chongqing University of Posts and Telecommunications (Social Science Edition), 35(2), 76-84.

[15] Liu, Y. Z., & Chen, X. Y. (2024). Legislative Thoughts on the Protection of Minors' Internet. Law Science, 12(2), 766-772. https://doi.org/10.12677/ojls.2024.122108.

[16] Liu, Z. F. (2019). Construction of National Guardianship System for Minors Based on the Principle of Proportionality. Legal Science (Journal of Northwest University of Political Science and Law), (2), 119.

[17] Peng, L. (2020). Research on the Governance of Internet Addiction of Minors. Research on the Prevention of Juvenile Delinquency, (6), 53-64.

[18] The People's Republic of China General Administration of Press and Publication. (2021). Notice on Preventing Minors from Addicting to Online Games.

[19] Surging news, surging number, government affairs. (2021, August 19). National anti-fraud center app main functions, downloads and specific usage methods. Retrieved October 8, 2024, from https://www.thepaper.cn/newsDetail_forward_14119804.

[20] Li, X. R., Zhang, Y. C., Lu, Y. T., Jiang, K. Y., & Zhou, Z. Y. (2023). Social Co-governance: Research on the Current Situation and Countermeasures of Juvenile Online Judicial Protection. Frontiers of Social Science, 12(5).