



Studies on the Protection of Children's Personal Information in the Era of Artificial Intelligence

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Abstract. The emergence and development of artificial intelligence have a great impact on the field of education. Compared with the protection of personal information of adults, the protection of children's information has its own particularity. In the era of artificial intelligence, children's personal information is extremely vulnerable to the illegal infringement by network service providers and other subjects due to the increase in online learning, consumption, entertainment and other ways. China's legislative system in the protection of children's personal information is not perfect, the relevant judicial experience is not mature, By learning from the relevant excellent experience of foreign countries and in combination with the judicial practice of our country, we shall constantly improve our country's system for protecting children's personal information, effectively give play to educational responsibilities of educational institutions, establish a system for protecting children's personal information in line with our national conditions, and maximize the interests of children in the field of children's personal information protection.

Keywords: Artificial intelligence, Children, Personal information, Education.

1 Introduction

Studies have shown that investment in AI has contributed significantly to corporate growth (see table 1)^[1]. AI has made a huge difference in human life, not only in production, but also in other areas.

Table 1. Impact of investments in artificial intelligence on business growth.

	Log Sales		Log Employment		Log Market Value	
	(1)	(2)	(3)	(4)	(5)	(6)
Share AI Workers	0.202*** (0.069)	0.195*** (0.069)	0.239** (0.097)	0.181** (0.086)	0.240** (0.093)	0.223** (0.086)
Industry FE	Y	Y	Y	Y	Y	Y
Controls	N	Y	N	Y	N	Y
Adj R-Squared	0.221	0.422	0.237	0.405	0.247	0.364
Observations	1,052	1,052	1,052	1,052	1,009	1,009

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On July 20, 2021, the Ministry of Youth Rights and Interests of the Central Committee of the Communist Youth League, the China Internet Network Information Center, and the China Youth New Media Association jointly released the "2020 National Underage Internet Use Research Report", which is based on 29,155 students and 5,965 parents in primary, middle, high and vocational schools in 31 provinces (autonomous regions and municipalities) across the country Sample survey. Data show that in 2020, China's underage Internet users reached 183 million, and the Internet penetration rate of minors was 94.9%, an increase of 1.8 percentage points over 2019. On December 23, 2023, the Ministry of Youth Rights and Interests of the Central Committee of the Communist Youth League, the China Internet Network Information Center and other departments jointly released the 5th National Survey Report on Internet Use of Minors, which shows that the number of juvenile Internet users in China has exceeded 193 million in 2022, and the number of juvenile Internet users continues to expand.

The Hangzhou Internet Court held that Article 111 of the Civil Code stipulates that any organization or individual that needs to obtain the personal information of others shall obtain and ensure the security of the information according to law, and shall not illegally collect, use, process and transmit the personal information of others, and shall not illegally buy, sell, provide or disclose the personal information of others. Without the consent of many unspecified natural persons, the defendant Sun illegally obtained the personal information of unspecified subjects, and illegally sold it for profit, infringing on the public information security interests that are carried on the personal information of unspecified social subjects. Therefore, Sun was sentenced to pay 34,000 yuan in compensation for damage to public interests in accordance with the interests gained from the infringement, and apologized to the public. After the judgment, the parties obeyed the court's judgment and did not appeal, and the judgment took effect. Article 1034 of the Civil Code stipulates that the personal information of natural persons is protected by law. Personal information is information recorded electronically or otherwise that can identify a specific natural person, individually or in combination with other information, including the natural person's name, date of birth, ID number, biometric information, address, telephone number, E-mail address, health information, whereabouts information, etc. However, with the development of information network technology, especially artificial intelligence technology, great changes have taken place in the generation, collection, storage and utilization of personal information^[2].

The civil judgment of the second instance of civil litigation regarding the network service contract dispute between Pang X and Guangzhou X company made by Guangzhou Intermediate People's Court on April 18, 2024. The court held that the ISP shall be deemed to be at fault if it fails to strictly fulfill the statutory obligations on real-name authentication, causing the real-name authentication to become a mere formality. In this case, the ISP (Shabak Company and Qunwan Company), as the appellee (defendants in the original trial), recharged money in the name of the plaintiff, Pang XX. Where a person receiving advance payments fails to go through authentication procedures, such as facial recognition, collection and photographing, or video recording, for the identity information of such person so as to confirm whether such person has the capacity for civil conduct, such person shall be deemed to have a fault to some extent. According to the relevant provisions of the Regulations of the People's Republic of China on the

Protection of Minors Online, network service providers shall set up minors mode. In judicial practice, the minor mode of some social software exists in name only. For example, in a case of network service contract disputes, after the minor mode of Lianmai's APP is turned on, it refuses to provide any other functions, the user can only click off the minor mode before continuing to use it. Online game, online live broadcast, online audio and video, online social networking, online shopping and other types of online service providers, there are loopholes in the identification of minors, technical measures, content services and other aspects. The authentication mode set by the network service platform is relatively simple, and no technical means such as dynamic monitoring is adopted, so that minors can easily bypass the real-name authentication system.

2 Current Legislation on Protection of Children's Personal Information in China

As our whole society enters the digital age, when many resources are integrated through data, many of our existing institutions may be impacted, and the infringement of existing personal information in the digital age may be more extensive. The digital age has indeed brought many impacts to the management of our society, including legislation. The personal information of children, in particular, should be protected separately as we move to improve legislation to protect these personal information and other rights that may be infringed in the era of big data. Children are not yet mature physically and mentally, and have greater plasticity than adults, and are more susceptible to the influence of external things¹. Ample research exists and focuses on teenagers' understanding of interpersonal privacy on social media. Less is known about younger children's understanding of privacy and data protection, especially in institutional and commercial data processing contexts^[3]. From the legislative level, China's data legislation system is not yet mature, and there is no separate legislation to protect the rights and interests of minors. In judicial practice, the trial experience on the protection of children's personal information is still immature.

3 The Impact of Artificial Intelligence on Children's Personal Information in The Field of Education and Countermeasures

In the era of artificial intelligence, the way of education has also undergone tremendous changes, the way of school teaching and the way of learning of students have changed because of the extensive application of artificial intelligence. In addition to improving the efficiency of learning, another consequence of these changes is that children's personal information is more exposed to the Internet, and therefore may be more vulnerable to infringement.

¹ Article 2 of the Provisions on the Protection of Children's Personal Information Online: The term "children" as mentioned in these Provisions refers to minors under the age of 14.

Network service providers should strictly fulfill their social responsibilities, take a more prudent attitude to provide network services, develop more mature technologies, and take more stringent technical measures to provide services for minors, strictly implement the real-name system management, use technical means to set the corresponding login time and authority management, consumption limit and other functions. The legitimate rights and interests of minors should be avoided and their physical and mental health should be adversely affected.

Research shows that among the current five relevant rules of the "Tiktok" platform, the provisions related to the rights and obligations of minors. There are a total of 14 clauses, accounting for 32.6% of the total clauses. Among them, 8 articles involve the protection of the rights of minors, and 7 articles provide for obligations of minors. Compared with the number of rights and obligations of both the "Tiktok" platform and the guardian. The number of rights and obligations clauses for the year is the smallest(See Table 2 and Table 3)^[4].

Table 2. Provisions related to the rights of minors.

The rights of minors	Rule Name	Clause	Quantity
Network Privacy Rights	Tiktok Parent Child Platform Service Agreement	Article 6	6
	Guidelines for Children and Adolescents' Use	Introduction/2.2/2.3/Articles	
	Self discipline Convention of "Tiktok" Online Community	Article 3.3	
	Tiktok User Service Agreement	Article 13.4.3	
APP usage rights	Tiktok Parent Child Platform Service Agreement	Article 2.6	2
	Tiktok User Service Agreement	Article 13.5.2	
Right to life and health	Self discipline Convention of "Tiktok" Online Community	Article 3.3	1

Table 3. Provisions related to the obligations of minors.

Obligations of minors	Rule Name	Clause	Quantity
Seeking the consent of the guardian	"Tiktok" Privacy Policy	Article 7.1	5
	"Tiktok" User Service Agreement	Article 13.1/13.2/13.4.1	
	Self discipline Convention of "Tiktok" Online Community	Article 3.1	
The obligation of civilized internet access	"Tiktok" User Service Agreement	Article 13.4.1/13.4.2	3
	Self discipline Convention of "Tiktok" Online Community	Article 3.3	

However, simply raising the technological threshold for enterprises, such as setting up a mode for minors or implementing graded management for children of different ages, may have extremely limited effects. Studies have shown that the category for minimum age and age verification is cumulative. One point will be awarded only if

both criteria are met, because we believe this fulfills the gatekeeper function. Studies suggest that children are often happy to lie about their age and that parents even encourage their children to sign up [13,16]; thus, the efficacy of a minimum age requirement in the absence of verification remains ethically questionable(See Table 4)^[5].

Table 4. Constraints of the scoring system.

Topic	Criteria for point	Criteria for no point
Minimum age or age verification	Age restriction and implement age verification	No age restriction no age verification present
Possibility to request deletion	Yes	No
(Parental) consent process	Consent by parents	Consent by user
Parent portal	Parent portal present	Parent portal

In addition, studies have shown that through regression analysis, it can be shown that the age, gender, and education of underage users, awareness, technological innovation of the platform, and family constraints will all affect the effectiveness of the platform’s mechanism for protecting minors to varying degrees(See Table 5 and Table 6)^[6].

Table 5. Regression analysis of related variables and feedback channel effects

Model		Non standardized co-efficient		Standardization coefficient	t	Significance	Collinearity statistics	
		B	Standard error	Beta			tolerance	VIF
1	(constant)	1.282	.206		6.216	.000		
	Recognition level of minors	.228	.047	.258	4.822	.000**	.796	1.256
	Technological innovation	.032	.044	.026	.530	.596	.931	1.074
	Family constraints	.295	.049	.313	5.969	.000**	.830	1.205

a. Dependent variable: Feedback channel effect

*p<0.05 **p<0.01

Table 6. Summary Table of the Effects of Various Variables on the Protection Mechanism for Minors on the Platform.

	Information protection effect	Technical protection effect	Content protection effect	Anti addiction management effect	Consumption management effect	Feedback channel effect
Age	/	/	+	/	/	/
Educational level	/	/	/	/	/	/
Awareness of minors	+	+	+	+	/	+
Technological innovation	/	+	/	/	/	/
Family constraints	+	+	+	+	+	+

4 Conclusion

In the era of artificial intelligence, children's learning ways will gradually change from traditional ways to a combination of traditional learning and online learning, and personal information will be extremely vulnerable to the illegal infringement by network service providers and other subjects. The data protection legislation of developed countries such as Europe and the United States started earlier, and developed countries such as Europe and the United States have excellent legislative experience in data legislation, and the Convention on the Rights of the Child, the Protection of Children's Online Privacy Protection Law and the General Data Protection Regulation have set a model for the protection of children's personal information legislation in China. China should try to learn from the excellent experience of western countries in the legislation of children's personal information protection, and educational institutions should strictly fulfill their educational duties and establish a children's personal information protection system suitable for China's national conditions.

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