

# Research on the Application Dilemmas and Legal Solutions of Smart Sports in China's Special Education Sector

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**Abstract:** Along with the advancement of science and technology, domestic smart sports technologies in China have achieved rapid development, and the issue of physical exercise for special education students has been significantly improved. Nevertheless, accompanying problems have arisen. Guided by the protection of sports rights for special education groups, this paper analyzes the application and development predicaments of smart sports in China's special education sector, and proposes relevant legal measures, hoping to better advance the development of smart sports in this field and thus enhance the physical and mental development of special students.

**Keywords:** Special Education Sector; Smart Sports; Development Predicaments; Legal Solutions

## 1. Introduction and Company Background

### 1.1 Research Background

Special education refers to education offered to students with special needs in physical, intellectual, sensory, language, behavioral, or other aspects. The implementation of special education is crucial for safeguarding human rights and advancing social diversity and inclusive development. Article 30 of The Sports Law of the People's Republic of China explicitly states: "The state shall, in accordance with the law, ensure citizens' right to equal participation in sports activities, and shall specially protect the right of minors, women, the elderly, the disabled, and others to engage in sports activities." However, due to the specific characteristics of special education students, the conduct of relevant physical exercises is restricted to some extent. Thus, in today's era of highly advanced technology, smart sports technology equipment designed for the special education field to assist physical education has emerged, which has improved the physical exercise conditions of special education students to some degree. Against this backdrop, the development of smart sports in the special education sector has been attached great importance by relevant Chinese authorities. Nevertheless, due to the short development period, the related technologies remain immature, their application in teaching is not widespread, and there are many issues in practical use. It is necessary to introduce relevant laws and regulations for regulation to a certain extent, so as to protect the legitimate personal rights and interests of students in special education.

### 1.2 Research Significance

Guided by the protection of sports rights for special groups in China, this research aims to identify the application predicaments and legal problems in the development of smart sports in China's special education sector, and propose relevant solutions through legal approaches, hoping to better promote the development of smart sports in this field and thus protect the physical exercise needs of special education students in accordance with the law.

## **2. Dilemmas in the Application of Smart Sports in Physical Education for Students in China's Special Education Sector**

Smart sports in the special education sector is a service model that, against the backdrop of the rapid development of intelligent technology, utilizes technological means such as artificial intelligence, big data, and sensors to better provide personalized and high-quality physical exercise services for students in special education, targeting their diverse physical exercise needs. Smart sports equipment has, to some extent, improved the physical exercise conditions of special education students, yet there are still many issues in practical use.

### **2.1 Technical Aspect**

Due to the short development period of smart sports in special sectors, high development costs, and limited practical application, there are many practical problems to be addressed at the technical level: 1. Stability: Many smart sports technology devices have a short development cycle and immature technical level, making them prone to malfunctions in complex and harsh real-world operating environments. 2. Accuracy: Some smart sports technology devices are affected by multiple external factors, resulting in data distortion. For instance, certain sensor devices are likely to malfunction in harsh weather conditions like high temperatures or heavy rains. 3. Matching degree: The development of many smart sports technology devices has not fully matched the needs of students in the special education sector, lacking targeting and personalization, thus failing to exert their practical functions.

### **2.2 Teaching Aspect**

In the actual teaching of the special education sector, there are also issues in the application of smart sports, which have significantly hindered the exertion of the advantageous role of smart sports in physical education in this field and restricted the actual physical exercise effects of special education students. Through the author's interviews and surveys with relevant special education schools and students in China, the main problems in the application of smart sports in actual teaching in the special education sector are as follows: 1. Some teachers are not skilled in operating smart sports technology devices. After introducing such equipment, special education schools usually provide relevant training, but the training duration is generally short, and the effect is unsatisfactory. Teachers do not fully and proficiently grasp the usage methods, so they either do not use the equipment or cannot properly guide students to use relevant smart sports technology devices in subsequent physical education classes. 2. Teaching methods have not been effectively improved to adapt to smart sports technology equipment. After introducing relevant smart sports technology devices, some teachers still adopt traditional physical education teaching methods, failing to utilize the unique advantages of these devices for students in special sectors. 3. Some teachers do not attach sufficient importance to smart sports technology devices and lack in-depth analysis, leading to the failure to achieve the effects and advantages of these devices.

### **3. Interpretation of Relevant Laws and Regulations on Smart Sports in China's Special Education Sector**

#### ***3.1 Interpretation of Article 23 of The Sports Law of the People's Republic of China***

Article 23 of The Sports Law of The People's Republic of China explicitly states: The whole society shall care for and support minors, women, the elderly, and persons with disabilities in participating in national fitness activities. It is incumbent upon the government at all levels to implement measures that ensure the safety and well-being of vulnerable groups, including minors, women, the elderly, and persons with disabilities, thereby facilitating their engagement in national fitness initiatives. This provision clarifies the state's protection of the sports activity rights of special groups. Among them, persons with disabilities in the special education sector also have the right to participate in national fitness activities, and relevant government departments should provide special protection and convenience to enable them to overcome physical and mental impairments and normally engage in corresponding physical exercises. This reflects China's respect for citizens' basic sports rights, actively advances the pursuit of fairness and justice in society as a whole, and is also an important objective of the newly revised Sports Law of the People's Republic of China. Therefore, the development of smart sports in the field of special education contributes to the implementation of Article 23 of The Sports Law of the People's Republic of China, which facilitates and guarantees the safe participation of persons with disabilities in national fitness activities. Against the backdrop of the rapid development of intelligent technology, smart sports technology, which employs technological means such as artificial intelligence, big data, and sensors to better provide personalized and high-quality physical exercise services for students in the special education sector, can break down physical, psychological, and environmental barriers to their physical exercise, ensuring the safety and convenience of their participation in sports activities. Meanwhile, Article 23 of The Sports Law of the People's Republic of China serves as a solid legal foundation for vigorously developing smart sports technology in special sectors. The development of smart sports in these sectors is relatively recent, with its practical application not yet widespread and many issues in real-world use. Article 23 of The Sports Law of the People's Republic of China clearly stipulates that convenience and protection should be provided for persons with disabilities to safely participate in national fitness activities, which also offers a clear direction and legal basis for the development, improvement, and advancement of smart sports technology in special sectors.

#### ***3.2 The Education Law of the People's Republic of China***

The Education Law of the People's Republic of China is a fundamental law applicable to all types and levels of education within China, encompassing the education of students in the special education sector. The Education Law of the People's Republic of China explicitly stipulates that all Chinese citizens have the basic right to education and emphasizes fairness and justice, providing legal support for students in the special education sector to use smart sports technology-assisted exercise equipment for regular physical education. The Education Law of the People's Republic of China encourages and promotes technological innovation in educational and teaching methods, offering legal protection for the development and innovation of smart sports in the special education sector. The Education Law of the People's Republic of China states that the use of teaching technical equipment should be safe and effective, requiring teachers and students in the special education sector to use smart sports technology devices correctly and safely.

### ***3.3 The Data Security Law of the People's Republic of China and The Personal Information Protection Law of the People's Republic of China***

In the teaching application of smart sports technology devices in the special education sector, there is a certain risk of leakage of special education students' personal information, physiological data, and sports data. The Personal Information Protection Law of the People's Republic of China explicitly protects the personal information rights of Chinese citizens. The collection, processing, and use of citizens' personal information must be legal and compliant, and citizens' rights such as the right to know, right to rectify, and right to copy their personal information shall be safeguarded. Compared with ordinary students, students in the special education sector have certain physical and mental impairments, and their personal information is more sensitive, thus requiring stronger protection by relevant laws and regulations. The Data Security Law of the People's Republic of China requires relevant managers to enhance data security management, focus on preventing data leakage and loss during data collection, processing, and use, and ensure data security. Students in the special education sector will produce certain physiological and sports data in smart sports-assisted teaching, and the safe management of such data must be guaranteed.

## **4. Analysis of Legal Issues Concerning Smart Sports in China's Special Education Sector**

### ***4.1 Data Privacy and Security Problems***

In the extensive application of smart sports in the special education sector, there are certain privacy and security issues in the process of collecting, transmitting, storing, and using relevant data. In the process of smart sports assisting physical education for students in special sectors, a large number of students' physiological data, sports data, and personal information are collected. Some parents and students are unaware of the data collected by certain smart sports devices, and this act is suspected of violating citizens' right to know. Meanwhile, the data collected by some smart sports technology devices may be unnecessary, exceeding the appropriate scope and gathering a large amount of irrelevant information, thereby increasing the security risk of data leakage. There are also certain security risks in data transmission and storage. According to the author's interviews and surveys, the transmission protocol for data collected by smart sports technology devices is unencrypted during transmission, posing certain security hazards. When data is transmitted to storage terminals, whether through mechanical equipment storage or cloud storage, there is a lack of security management systems. Therefore, it is urgent to strengthen security risk control over relevant data during transmission and storage. Regarding data usage, schools and relevant staff also lack a sense of responsibility for data security management and protection, making relevant data vulnerable to leakage. Therefore, it is necessary to clarify the permissions for data acquisition and use, standardize data usage, and prevent leakage.

### ***4.2 Issues of Responsibility Demarcation***

In the process of smart sports technology devices assisting physical education for students in special sectors, when problems such as data leakage, equipment malfunction, or student injury arise, it is necessary to define and clarify the corresponding legal liabilities. When data leakage occurs and causes certain losses and damages, if the damage results from inadequate data security protection measures or substandard security protection technology of the device manufacturer, the manufacturer shall generally bear the corresponding legal liability. In such cases, if the school has

management flaws, it shall bear supplementary liability. If the damage is caused by gross negligence of the school in data management, the school shall bear the corresponding legal liability. In such cases, if the device manufacturer is liable, it shall bear supplementary liability; otherwise, it shall be exempt from liability. When equipment malfunction causes damage such as student injury, there are mainly the following common scenarios:

1) If the equipment itself malfunctions, resulting in damage, the manufacturer of the technical device shall bear the corresponding legal liability.

2) During equipment use, if a teacher's operational error or negligence causes equipment malfunction and subsequent damage, the school shall bear legal liability, and may subsequently pursue the liability of the teacher responsible for the accident.

3) If the school fails to maintain the equipment on schedule or lacks relevant safety management measures, resulting in technical device malfunction and damage, the school shall bear the corresponding legal responsibility in such cases. Apart from damage caused by equipment malfunction, when students in special sectors are injured while using smart sports technology devices for physical exercise, legal liability shall be determined in accordance with the basic principle of civil tort law that "who is liable shall bear the responsibility".

#### ***4.3 Issues of Convergence between Technical Standards and Legal Norms***

In the application of smart sports technology devices assisting physical education in the special education sector, the technical standards and legal norms of relevant products and devices are unsynchronized, inconsistent, and uncoordinated, exerting some adverse impacts on the practical application of such devices in assisting physical education for special education students.

Some smart sports technology auxiliary devices do not attach sufficient importance to data security management and have inadequate data protection. Their technical standards only set general safety requirements for data collection, storage, transmission, and use, while legal norms such as The Data Security Law of the People's Republic of China and The Personal Information Protection Law of the People's Republic of China have detailed provisions on safety protection throughout the entire data application process. The gap between their technical standards and the requirements of legal norms exposes them to certain legal risks. Regarding the safety of smart sports technology devices, their technical standards are also inconsistent with the development direction of legal norms. These technical standards often focus more on performance requirements to achieve better technical levels and user experience, while relevant legal norms emphasize product quality liability, consumer rights protection, etc. This inconsistency poses challenges to the development of smart sports technology devices in the special education sector. In practical teaching applications, the contradictions and issues arising from the inconsistency between the technical standards of smart sports technology devices and legal norms are very prominent. It is necessary to strengthen communication and coordination between technical standard-setting authorities and legal norm-formulating departments, establish a dynamic adjustment mechanism for technical standards and legal norms, and relevant regulatory authorities should also enhance supervision and law enforcement over manufacturers and users of smart sports technology devices.

### **5. Construction of a Legal Protection Mechanism for Smart Sports in China's Special Education Sector**

#### ***5.1 Improving the Legal and Regulatory System***

The application and development of smart sports in the special education sector require a solid legal foundation. Although the sports rights of groups in the special education sector are mentioned in legal norms such as The Sports Law of the People's Republic of China and The Education Law of the People's Republic of China, there are no detailed provisions for smart sports in this sector. All links, including R&D, production, sales, and use of smart sports auxiliary equipment in the special education sector, need to clarify the rights and obligations of all parties. Therefore, relevant laws, regulations, and rules on smart sports in the special education sector urgently need to be formulated and improved. In the R&D phase, relevant legal norms should specify the technical standards and R&D specifications for smart sports equipment in the special education sector, requiring manufacturers to fully consider the physical and mental characteristics and physical education needs of special students during R&D to ensure the safety, functionality, and compatibility of the equipment. In the production phase, the qualifications and production processes of manufacturing enterprises should be standardized, and supervision over product quality should be enhanced. In the sales phase, it is necessary to clarify the norms and requirements for sales channels, strengthen supervision over the sales process, and specify the after-sales service obligations of sellers. In the usage phase, it is necessary to clarify the relevant rights and obligations of special education schools, teachers, and students. Meanwhile, the provisions related to smart sports in the special education sector in existing laws and regulations also need to be refined and improved urgently. The Sports Law of the People's Republic of China, it is necessary to further explicitly stipulate the sports rights of groups in the special education sector and corresponding protection measures. The Education Law of the People's Republic of China, specific provisions for smart sports teaching in the special education sector should be refined and improved. The Data Security Law of the People's Republic of China and The Personal Information Protection Law of the People's Republic of China, more comprehensive safety norms and requirements should be elaborated for links such as data collection, storage, and use of smart sports technology equipment in the special education sector. Only by continuously improving the corresponding legal and regulatory system in this manner can we better promote the development and progress of smart sports in the special education sector.

### ***5.2 Enhancing Supervision and Law Enforcement***

Under the protection of relevant laws and regulations, to actively promote the teaching application of smart sports in the special education sector, it is essential to strengthen the supervision system and intensify relevant law enforcement efforts. In the R&D phase, regulatory authorities should establish an R&D filing system, strengthen supervision over enterprises' R&D activities, require enterprises to comply with relevant technical standards and R&D specifications, enhance supervision over intellectual property protection during R&D to prevent infringements, and encourage enterprises to engage in independent innovation. In the production phase, regulatory authorities should strictly examine the production qualifications of enterprises, strengthen quality supervision overall production processes, and establish a strict product quality sampling inspection system. In the sales phase, regulatory authorities should strictly regulate sales channels, strengthen supervision over distributors, establish and improve a sales ledger system, and focus on enhancing supervision over online sales platforms. In the usage phase, regulatory authorities should strengthen guidance and supervision over the use of smart sports auxiliary exercise equipment by special education schools and teachers, conduct regular inspections of equipment usage in schools, enhance teacher training and assessment, and establish and improve complaint and reporting mechanisms.



Intensifying law enforcement efforts is crucial to ensuring the effective implementation of relevant laws, regulations, and rules. Law enforcement agencies should strictly investigate and punish all types of illegal acts in accordance with the law. For acts that infringe upon the legitimate rights and interests of special students, such as data privacy and personal safety, they shall pursue the legal liabilities of relevant responsible persons in accordance with the law, establish and improve a joint law enforcement mechanism, strengthen collaboration among sports, education, market supervision, cyberspace, and other departments to form law enforcement synergy, focus on strengthening the building of law enforcement teams, improve the professional quality and law enforcement capabilities of law enforcement personnel, and ensure fair, strict, and standardized law enforcement. Continuously strengthening supervision, significantly enhancing law enforcement efforts, promoting the application and development of smart sports in the special education sector, and protecting the legitimate rights and interests of special education students in accordance with the law.

### **5.3 Establishing Legal Remedy Channels**

In the application of smart sports teaching in the special education sector, when the legitimate rights and interests of students and their parents are violated, the parties should be ensured access to reasonable and legal channels for remedies. Negotiation, mediation, complaint, arbitration, and litigation are the five most important remedy channels. Among them, negotiation is the primary method for resolving conflicts. When the rights and interests of students in special sectors and their parents are violated, both parties should engage in friendly negotiations based on the principles of fairness and justice; Mediation is a more flexible dispute resolution method involving third-party mediation organizations, such as consumer associations and education mediation committees. Mediators should be familiar with relevant business operations and laws and regulations. After successful mediation in accordance with the principles of fairness and justice and relevant laws and regulations, both parties shall sign a mediation agreement; Complaint is a means for the injured party to seek public power remedy, where the victim reports the situation to public authorities such as regulatory bodies for assistance. Regulatory authorities should adhere to administrative principles including fairness, justice, openness, efficiency, and convenience; Arbitration is a professional and efficient dispute resolution method. Both parties can stipulate arbitration clauses in the contract. Arbitration institutions should be professional, impartial, and independent. The arbitration process should follow legal procedures to safeguard the legitimate rights and interests of both parties, including the right to know and the right to argue; Litigation is the final line of defense for resolving disputes and seeking remedies. When disputes cannot be resolved through negotiation, mediation, complaint, or arbitration, special students and their parents can file a lawsuit with the court, and the judicial authority will render a fair judgment.

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