Leveraging Artificial Intelligence to Enhance Sports Cultural Awareness and Facilitate International Communication

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Abstract: *As an important bridge for cross-cultural communication, the international dissemination of the cultural connotation and value of sports cannot be separated from the promotion of digital technology. In order to realize the change of sports culture communication mode, artificial intelligence is proposed to promote sports culture cognition and international communication. Firstly, the concepts of artificial intelligence and sports culture cognition are analyzed respectively, and it is pointed out that artificial intelligence technology can bring new opportunities for sports culture communication through its powerful advantages in data processing. Then it is proposed that AI technology can empower the selection and planning of sports culture works and innovate its communication mode. The influence path of AI is analyzed from the three aspects of revolutionizing ideology, building technical platform and enriching communication channels. It aims to promote the wide application and in-depth development of AI in sports culture cognition and international communication.*

Keywords: *artificial intelligence; sports culture; cultural awareness; international communication; digitalization*

1. Introduction

As an important part of human social culture, sports culture contains rich historical heritage, national spirit and contemporary value. However, the traditional way of sports culture dissemination is limited by geography, language, cultural differences and other factors, which makes it difficult to realize efficient and accurate dissemination on a global scale. Meanwhile, with the wide application of cloud computing and other technologies, the communication channels and methods of sports culture are undergoing profound changes[1]. The addition of artificial intelligence technology has injected new vitality into this change, making the cognition and dissemination of sports culture more intelligent, personalized and efficient. Promoting the cognition and international dissemination of sports culture with artificial intelligence helps to enhance the international influence of sports culture. By filtering, integrating and pushing sports information through intelligent algorithms, it can more accurately meet the needs of audiences in different countries and regions, and enhance their cognition and recognition of sports culture. At the same time, this research helps to promote the communication and integration of global sports culture[2]. Artificial intelligence technology can break the barriers of language and culture, realize the barrier-free dissemination of sports information, and build a new bridge for the exchange of sports culture between different countries and regions. The research is also of great significance in promoting the development of the sports industry. Through intelligent analysis of user behavior and market trends, it provides data support and decision-making basis for the innovative development of the sports industry, and then promotes the transformation and upgrading and high-quality development of the sports industry. In recent years, the application of artificial intelligence in the field of sports and cultural communication has made significant progress[3]. On the one hand, sensor technology, intelligent robots and other cutting-edge technologies have been widely used in the collection, production and distribution of sports events, improving the collection efficiency and dissemination quality of sports information. On the other hand, the application of virtual reality (VR), augmented reality (AR) and other technologies has enabled viewers to experience sports events in an immersive manner, which has greatly enhanced their sense of participation and immersion. In addition, the application of intelligent algorithms in content recommendation and sentiment analysis also provides strong support for the personalized communication of sports culture[4]. However, most of the current research focuses on the exploration and application of the technical level, and there is still insufficient

research on how AI deeply affects the cognition of sports culture and the international communication mechanism. The purpose of this paper is to systematically explore the influence mechanism of AI on sports culture cognition and international communication from the perspective of multidisciplinary crossover, integrating the knowledge of communication, sports science, computer science and other fields.

2. Conceptual analysis

2.1 Artificial Intelligence

Artificial Intelligence (AI) is a broad and in-depth concept, which refers to the technology that simulates, extends and expands human intelligence through computer programs or machines. Its core lies in equipping computers with human-like capabilities of learning, reasoning, cognition, perception, and decision-making, etc[5]. The realization of AI relies on complex algorithms, big data processing, and advanced computational technologies, of which machine learning and deep learning are two key branches.

In machine learning, computers automatically improve and optimize models by analyzing and learning from large amounts of data to accomplish specific tasks. Deep learning goes further by processing complex data in depth through neural network structures, realizing remarkable breakthroughs in fields such as image recognition, speech recognition, and natural language processing. These technologies have not only pushed forward the progress of science and technology, but also profoundly influenced the development of sports culture.

By analyzing an athlete's training videos and game data, AI is able to identify subtle differences in technical movements and provide personalized suggestions for improvement. This precise data analysis goes beyond the naked eye observation of human coaches and helps athletes improve their skill level faster[6]. At the same time, with AI technology, the sports world can more scientifically assess athletes' potential and performance. Through big data analysis and machine learning models, the future development trend of athletes can be predicted, providing a scientific basis for selection and training programs. The application of AI in tournaments, such as the Hawk-Eye system in tennis and the electronic referee in soccer, improves the fairness and accuracy of matches[7]. Through high-speed camera and data analysis, these systems are able to instantly judge key events in the game and reduce human misjudgments and disputes. In addition, AI technology has facilitated the dissemination and popularization of sports culture. Through virtual reality (VR) and augmented reality (AR) technologies, viewers can enjoy an immersive viewing experience at home, while AI-powered social media platforms accelerate the dissemination of sports news and event information.

2.2 Perception of sports culture

Sports culture cognition covers the process of understanding, perceiving and identifying with sports phenomena, sports activities and the values, social meanings and cultural connotations behind them[8]. This concept is not only limited to the awareness of the skills and rules of sports, but also goes deeper into the profound understanding of sportsmanship, sports ethics, sports history, and the role and function of sports in contemporary society.

Sports culture cognition is the realization of sport as a unique cultural form. It implies an understanding that sport is not merely a physical activity or a competitive game, but a spiritual product that carries the characteristics of a particular historical period, region and social culture. The diversity and richness of sports culture is reflected in the cultural symbols, values and behavioral norms embedded in different sports.

Sports culture cognition also involves an appreciation of the spirit of sport. This includes the core values of hard work, solidarity and fair play, which not only motivate athletes to pursue excellence on the field of play, but also inspire the general public to be positive and challenge themselves in their daily lives[9]. In addition, sports culture cognition is also reflected in the understanding of the relationship between sports and society. As an important part of social culture, sport is closely connected with many fields such as social politics, economy and education. It not only promotes the physical and mental health of individuals, but also enhances social cohesion and promotes the harmonious development of society.

3. The Impact of Artificial Intelligence on Sports Culture

3.1 Selection Planning of Artificial Intelligence-Enabled Sports and Cultural Works

The topic planning of sports culture works should express the development direction of the topic more strongly, and combine it with the legendary image of athletes in sports activities, the wonderful moments of winning the championships and the guidance of public opinion, focusing on the fact that culture originates from the participation of human beings in sports activities, higher than the competitiveness of competitions and the guidance of values, and embodying the academic value of sports culture and the practical significance of the activities[10]. Literature analysis utilizes intelligent digital technology, such as the use of CiteSpace software to analyze and process the relevant data, which is able to produce a scientific knowledge structure, law and distribution. Big data analysis from a large number of sporting events competitions, championship winning videos and legendary athletes allows for knowledge mapping, assessing their value in culture by organizing, identifying and filtering effective content and popular topics[11]. The Willingness Survey applies data mining, visualization data and intelligent Q&A system in artificial intelligence technology, so as to analyze the sports that the audience population tends to prefer in sports and cultural works, the preferred mode of communication and channels, etc., and to assist the creators of the works to create marketable and excellent works. This will help creators to create marketable and excellent works, improve the accuracy of creators' grasp of the works, and enhance the popularity and attractiveness of sports and cultural works in the minds of the public, so as to make the works more deeply rooted in people's hearts and inspire a wider range of resonance and interest.

3.2 Artificial Intelligence Enabling Innovative Communication Models for Sports Culture

Artificial intelligence can optimize the collection and processing of sports information. Through sensors and IoT technology, AI is able to capture key data from sports events in real time, including the performance of athletes and the reaction of spectators, and analyze them in depth. These data not only provide rich materials for event coverage, but also provide an accurate basis for subsequent sports culture dissemination. Artificial intelligence shows great potential in content creation. For example, intelligent writing robots can automatically generate news reports based on match data, which not only improves the efficiency of news production, but also makes the content of the reports more objective and accurate[12]. In addition, AI can also create more creative and infectious sports stories through natural language processing technology to meet the diverse reading needs of audiences.

Artificial Intelligence (AI) has driven the diversification and personalization of sports and cultural communication platforms. Through intelligent algorithms, AI is able to analyze users' interests and preferences and recommend personalized sports content for them. Meanwhile, the application of VR and AR technologies allows audiences to experience the charm of sports events in an immersive way, enhancing the communication effect and user experience[13]. Artificial intelligence also promotes the internationalization and interaction of sports culture communication. In the context of globalization, AI technology can help sports culture cross geographical restrictions and achieve wider dissemination. At the same time, through social media and other interactive platforms, AI can also promote communication and discussion among audiences, forming a more active sports culture community.

4. Analysis of the Path of Artificial Intelligence to Promote Sports Culture Awareness and International Communication

4.1 Renewal of Ideas and Concepts

In the digital age, sports activities are no longer confined to specific venues, a limited number of athletes and programs. The extensive use of digital technology has led to the optimization and upgrading of sports activities from the traditional offline format to a new model of cloud-based participation. This optimization has made sports competition no longer a niche activity involving a few outstanding athletes, but has turned it into a mass sports activity in which everyone can participate. It promotes the deep integration of sports culture and digital technology, realizing a new industry and new mode for everyone to participate in sports, familiarize themselves with sports programs and innovate sports. The creation of sports and cultural products requires that the concept of sports and culture be updated and the mode of thinking be changed in order to adapt to the development of the times[14]. To put it another way, sports culture innovation should set up the concept of digital development at the

beginning, carefully study the bottlenecks and short boards encountered in the digital dissemination of sports culture, and make full use of digital thinking based on the audience to obtain, disseminate, participate in the convenience, intuition, and wide-ranging objectives such as planning for innovation, and to promote the in-depth integration of sports culture and digital technology. Therefore, it is necessary to establish the concept of digital sports culture, recognizing that digital technology is an important force to promote the innovative dissemination of sports culture. This means that in all aspects of the creation, dissemination and education of sports culture, digital thinking should be actively integrated, and advanced technologies such as artificial intelligence should be used to enhance the expressive and infectious power of sports culture. Through digital means, sports culture is more vivid, intuitive, easy to understand and accept, thus broadening its audience base. In terms of internationalized communication, artificial intelligence can break the geographical restrictions and realize the global sharing of sports culture. By building a multilingual and cross-cultural sports culture dissemination platform and utilizing AI's translation and recommendation technology, excellent sports culture products are promoted to the international market. At the same time, virtual reality (VR), augmented reality (AR) and other advanced technologies are utilized to create an immersive sports and cultural experience, so that international audiences can immerse themselves in the charms of sports and culture in different countries and regions.

The cultivation of sports culture heritage talents should also comply with the needs of digital transformation, enhance digital thinking and innovation consciousness, promote the deep integration of the constantly iterating digital technology into the development process of sports culture, and cater to the audience's needs for personalized and diversified experiences of sports culture in the digital era.

4.2 Building technology platforms

The utilization of new-generation technologies in sports culture should be accelerated in terms of topic selection and planning, work innovation, dissemination modes, and cultural inheritance. This requires enhancing the adaptability of sports culture to the constant iteration of digital technology, thereby increasing its appeal, influence, and entertainment value. Artificial intelligence should be fully leveraged to facilitate the inheritance of sports culture, protect and promote outstanding traditional culture, and establish a system that emphasizes local distinctiveness while being amenable to national-scale planning and characterized by open-sharing [15]. Furthermore, a digital resource base for sports culture should be established to further bolster the infrastructure supporting the preservation, development, and promotion of sports culture, thereby fostering its sustainable development. Efforts should also be actively made to promote the application of digital technologies, such as big data and cloud computing, within the sports and culture industry. This will serve to bring the general public closer to sports, promote the dissemination of sports culture, and enhance the digital technology proficiency of sports enthusiasts.

Under the current impact of multiculturalism and diversified forms of entertainment, the challenges faced by the dissemination of sports culture are unprecedented. In order to better protect, pass on and develop outstanding sports culture, the "Sports Digital Resource Integration Platform", which is characterized by the transmission of technical knowledge of sports and the spirit of sports, has come into being through the use of big data, cloud computing, artificial intelligence and other technologies. The "Sports Digital Resource Integration Platform" is a platform for centralized storage and management of information, materials and data related to sports, physical education and related cultural fields. The specific structure of the platform is shown in table 1.

Table1: Structure of the Sports Digital Resource Convergence Platform

Platform Hierarchy	Description	Functions and Features
Infrastructure Layer	Cloud computing infrastructure, data storage and server clustering	Provide highly available and scalable computing resources and storage capacity - Support rapid processing and querying of massive data - Ensure safe and stable operation of the platform. br>- Ensure safe and stable operation of the platform
Data Resource Layer	Centralized storage and management of information, materials and data in the field of sports, physical education and related culture	Classified storage of sports skills knowledge, traditional sports culture, event data, etc. - Data cleansing, organizing, and standardized processing - Realization of long-term preservation and backup of data resources
Data processing layer	Data processing and analysis using big data, artificial intelligence and other technologies	Analyze user behavior and preferences to achieve personalized recommendations - Mining data value to discover new trends and hotspots in sports culture - Supporting complex queries and advanced analysis functions

The platform is a cloud-based resource base that provides open and shared information for the whole society, storing a large amount of knowledge about the skills of sports programs and related traditional sports culture. Utilizing big data technology, users can search for keywords to access related resources, providing users with knowledge resources as well as convenient digital technology tools that allow the public to access sports knowledge anytime, anywhere. The platform changes the way knowledge was delivered in the past by adopting different modes of resource access for different age groups. Families, schools and society can use the platform to realize the integration of the three dimensions of digital, culture and education, and also to better drive the transmission of sports culture. In order to better protect, pass on and develop outstanding sports culture, the platform's ability to be used should be utilized to a greater extent, so as to pass on to the public the connotation of sports culture that has a deeper underlying meaning and to enhance the influence of sports culture.

4.3 Enrichment of communication channels

The dissemination of sports culture in the digital era is bound to adapt to the characteristics of the new era, with short delay, wide coverage, fast dissemination speed, more convenient access to dissemination channels, and a richer sense of experience for the public. Utilizing artificial intelligence technology can broaden the dissemination channels of sports culture, making it more accessible and engaging for a wider audience. A created virtual digital person can be modeled on the more influential athletes in real life.The application of artificial intelligence technology has brought the interaction and contact between sports athletes and fans closer, and has more closely enhanced the influence of sports culture. In this regard, social media and short video platforms such as WeChat, Weibo, Shake Tone and other social media platforms can be utilized, combined with the algorithmic recommendation of artificial intelligence, to accurately push sports culture content to the target audience. Through short videos, live broadcasts and other forms, it shows the wonderful moments of sports events, the training routines of athletes and the deep heritage of sports culture, enhancing the attractiveness and spread of the content. Meanwhile, with the help of VR/AR technology, it builds an immersive sports culture experience scene. The audience can be at home, feel the tension and excitement of the game, and even participate in virtual event interactions, greatly broadening the boundaries of the dissemination of sports culture. Through smart bracelets, smart watches and other wearable devices, user sports data are collected, combined with Internet of Things technology, personal sports results are connected to social platforms, forming a "sports social" new business. This will not only stimulate the public's enthusiasm for sports, but also promote the wide dissemination of sports culture.

In terms of personalized customized services, the data analysis capability of artificial intelligence can be used to provide users with personalized sports services. For example, according to the user's sports habits and preferences, customized exclusive sports plans, nutritional programs, etc., to meet the diversified sports needs of users. At the same time, it develops personalized sports and cultural products, such as customized sports equipment and digital collections, to enhance user experience and loyalty. Meanwhile, it strengthens cooperation and exchanges with international sports organizations, media and enterprises to jointly promote the international dissemination of sports culture. Through the organization of international sports events and cultural exchange activities, it showcases the unique charm and development achievements of China's sports culture. At the same time, it draws on international advanced experience and technology to enhance the dissemination and competitiveness of Chinese sports culture.

5. Conclusion

Taking "Artificial Intelligence (AI) for Sports Culture Cognition and International Communication" as the core topic, this study explores the unique role and potential of AI technology in promoting the deepening of sports culture cognition and expanding the breadth of international communication. Through systematic theoretical investigation, empirical analysis and strategy discussion, we not only reveal how AI can reshape the ecological pattern of sports culture communication, but also clarify its significance in enhancing the international influence of sports culture and promoting global cultural exchanges and integration.

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