Research on the Integrated Development of Intelligent Sports and Traditional Sports from the Perspective of National Fitness

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Abstract: In this paper, through the analysis of the connotation of traditional sports and intelligence, the national fitness environment exposed the disadvantages of traditional sports development, and the development of intelligent sports highlights the advantages of gradually, it is found that the basic attribute and value co creation of sports are the basis for the integration of the two. The intelligence and efficiency of intelligent sports break many restrictions in the development of traditional sports. In the context of national fitness, people's requirements for sports are constantly improving, promoting the integration and development of intelligent sports and traditional sports, add the application of intelligent technology in the traditional sports industry, strengthen the supervision of the intelligent sports industry, and solve the problems faced in the integrated development of intelligent sports and traditional sports.

1. Introduction

Since the promulgation of the National Fitness Program in 1995, national fitness activities have been vigorously promoted in various regions, and the implementation of a comprehensive national fitness program has led to an unprecedented development of various sports [1]. People from different industries and age groups have been enthusiastically participating in various sports. Since the national fitness campaign was fully implemented, various sports events and activities have been held in different regions, and the concept of physical fitness has been deeply rooted in people's minds. The sports consumption market is gradually expanding, people's demand for scientific fitness is increasing, and the sports industry is developing in a diversified direction.

In 2021, the "Outline of the 14th Five-Year Plan of the National Economic and Social Development of the People's Republic of China and the Vision 2035" explicitly calls for digital and intelligent reform among industries. As digital construction continues to progress, new industries and services will emerge in large numbers. The future needs of the sports industry are transforming towards intelligence and information technology, and the change from traditional sports to smart sports has become the mainstream trend in the sports industry [2]. Traditional sports are a comprehensive expression of the historical development, cultural lifestyle and folk customs of each nation. Today's fast-developing smart sports offer great convenience and wider participation. Smart sports are deeply relevant to the fast-paced lifestyle of today's society and are more popular than traditional sports. Combining the advantages of smart sports, such as intelligence, data and science, with traditional sports will allow people to participate more conveniently and professionally in traditional sports activities and achieve the goal of improving their physical and mental well-being.

The integration of traditional sports and smart sports is the trend of the times. Focusing on the development of intelligent sports industry, we will conduct research on the basic theory and practice of intelligent sports industry, and try to translate the research results into the field of national fitness, which will inject new vitality into the development of traditional sports industry, and has profound practical significance for the development of sports in China from the perspective of national fitness.

2. The connotation of traditional sports and the bottleneck of future development

2.1 Definition of traditional sports

So far, there is no unified definition of traditional sports, and the results of past scholars' researches show that the definition basically revolves around the theme of "traditional culture + sports", which is historically inherited, and sports activities basically include two aspects: one is created and inherited by people in a country or place; the other is embodied in physical movement and inherited the traditional culture of a country or place.

Traditional sports mainly include competition, recreation, and health, and each type of sport has a variety of expressions and specific names, each with its own characteristics. Traditional sports have limitations in terms of venues and equipment, participants, and support staff to maintain the activities, and they are difficult to teach and train. Therefore, in the context of national fitness today, there are many obstacles that need to be addressed in order to meet the fitness needs of the general public through traditional sports.

2.2 Disadvantages of traditional sports in the national fitness environment

At present, traditional sports have established a relatively complete system in many fields such as society and campus, and have a certain economic and social value. However, with the rapid development of science and technology, traditional sports have not changed and innovated with the technological progress of the times. In a narrow sense, traditional sports are sports that do not involve intelligent technology. More broadly, it refers to the current methods of sports that can be played without intelligence. But it is the lack of intelligence that prevents traditional sports from entering people's lives more easily and deeply, leaving the participating audience without a deeper understanding, and ultimately making it difficult to increase social and economic benefits. These constraints are bottlenecks for the future development of traditional sports. In conclusion, today, as sports skills are changing, demands are diversifying, and competition is becoming increasingly fierce, the traditional sports industry must keep pace with the times and keep innovating to integrate with the development of smart sports if it wants to achieve long-term development.

3. The connotation of smart sports and future development opportunities

3.1 Definition of Smart Sports

In a narrow sense, smart sports are based on various intelligent fitness support products developed under the concept of scientific and technological intelligence, in which the intelligent technology involved mainly refers to artificial intelligence technology, and the intelligent product terminals mainly include smart sports equipment and smart sports APP. Large-sized equipment such as smart gyms and smart treadmills, and small-sized machines including smart running shoes and smart bracelets. There are many kinds of smart APPs, such as Health Cat and Goudong Sports. These smart sports products have the following three characteristics: (1) high degree of intelligence, with easy-to-operate and humanized design of the terminal system, participants can monitor the exercise effect at any time through the display interface, timely understanding of the data analysis and evaluation content, and more comprehensive understanding of their physical condition from the data; (2) convenience and mobility, smart sports products are displayed on the cell phone mobile effect information, most of them are not restricted by the scene. (2) convenience and mobility, smart sports products are displayed on mobile phones, most of which are not restricted by scenarios and can be used instantly no matter where you are; (3) network cloud storage, as a product of the information age, smart sports products can upload various data to the network and save them to the cloud in real time.

In a broader sense, smart sports are not only limited to sports equipment and sports APPs, but also involve the whole industry ecology and service chain. In a broad sense, it can be divided into two main categories: smart sports service industry and manufacturing industry. The definition of smart sports in this paper refers to the concept of smart sports in a narrow sense, and the main products

include smart sports devices and smart sports APPs.

3.2 Advantages of intelligent sports development in the context of national fitness

The development of smart sports in the context of national fitness has more advantages than traditional sports. First, it reduces the risk of people participating in sports. Because smart sports are based on scientific data and statistics, they can provide scientific guidance to exercise participants according to the changes in data. Compared with traditional sports, smart sports products can monitor participants' physical conditions in real time, such as changes in exercise heart rate, the number of calories consumed daily, and the effect of each stage of exercise, so that participants can control the exercise according to their own actual situation, thus reducing the risk of exercise. In addition, smart APP products can also provide scientific and technical guidance for participants, who can get the professional fitness knowledge they want directly from the APP. Secondly, to stimulate the enthusiasm of the general public and reduce the cost of fitness. Nowadays, both the way people participate in sports and their understanding of sports have changed compared to the past, and the combination of smart sports and traditional sports has become fashionable. For example, in running, smart sports products can record the daily running distance, average speed, step count and other information, and participants can compare with their friends on the WeChat display, which is a competitive way to motivate individuals to participate in fitness. Finally, smart sports have a broader function. In the context of national fitness, many sports are becoming more and more popular due to the support of intelligence, accompanied by the emergence of various products, including running, fitness, swimming, yoga, etc., both the continuous renovation of hardware facilities and the emergence of software APPs. These smart sports products, with a wide variety and complete functions, provide a lot of convenience to the general public when doing fitness sports.

4. Commonality and Deepening: Opportunities for the Integration of Smart Sports and Traditional Sports

4.1 Commonality of Smart Sports and Traditional Sports

From a macro perspective, smart sports and traditional sports are two separate parts, both with the original properties of sports and representing the expression of sports in different times.

First of all, they both have fitness, recreational and competitive functions. In terms of fitness function, most of the traditional sports are aerobic sports that promote blood flow throughout the body through exercise, which is beneficial to strengthening the body. Smart sports are a deepening and upgrading of traditional sports, and participants also have the effect of training and warming up, fat burning and slimming in the process of participating in fitness, which can achieve the effect of strengthening the body. In terms of recreational functions, many traditional sports have recreational features, such as rowing and stilt walking. Smart sports are not only entertaining, but also surpass traditional sports in this aspect, such as "Super Mary", which is a kind of sport with fitness and game, and has strong entertainment. In terms of competitive functions, both traditional sports and smart sports are competitive. Regardless of the type of traditional sports, the goal is to win the game through a contest of strength and the use of skill. The development of smart sports has made the competitive competition more of an application of "intelligence", which is reflected in the "intellectual" competition in addition to the physical sports competition. Secondly, both of them have the function of co-creation of value. From the perspective of competition, the various players involved in sports, such as athletes, coaches, game judges, or sports organizers, are co-creators of the overall sports value. For example, the spectators of a game buy tickets to watch the game, and the members of an online viewing platform recharge their membership, which is a financial investment, and the organizers rent out the advertising rights on site and earn revenue from the peripheral expenses of the event. The athletes are cheered by the spectators and supported by the sponsors, which is also considered as the reward after paying. From the perspective of personal fitness, both smart wearable products and traditional sports events show the value of both, i.e., they both have a certain value co-creation function. The co-creation of value promotes social and economic development, the spread of

traditional sports culture, and the awareness of fitness for all.

4.2 Smart sports are the deepening of traditional sports nowadays

4.2.1 Smart sports break the geographical limitation for traditional sports

Smart sports products can help participants to exercise better by using information technology. Regardless of who the participants are, when and where they are, they can access fitness resources through smart devices connected to the network and perform scientific and reasonable fitness exercises according to their comfort [3]. This kind of ubiquitous exercise, which is not bound by time and space, has a high degree of integration and provides a good exercise environment for participants [4]. This type of ubiquitous exercise allows participants to arrange exercise time and activity venues more flexibly, and to obtain accurate information about their fitness exercise in real time, which breaks the time and space limitations of traditional physical activities in the past. In the era of universal fitness, it is convenient to meet people's individual consumption needs to the maximum extent. Each participant's physical condition is different, and smart sports products can also provide appropriate fitness guidance to achieve the best fitness results according to their specific conditions.

4.2.2 Smart sports create conditions for the personalized development of traditional sports

Traditional sport is a value judgment based on experience, but the probability of miscarriage of justice is not low. In the context of fitness for all, the total number of people participating in fitness is very large, even if the probability of misjudgment is low. The advantage of smart sports over traditional sports is that they offer a more professional and scientifically accurate approach to training. Everything is based on objective and real data, which are identified in three ways: training images, exercise videos, and fitness postures, and then provided to participants with scientific guidance plans and personalized exercise advice through more accurate and flexible means of information distribution and sharing. For example, with smart running, you can view not only the length of each exercise session, the frequency of running, and the estimated number of calories burned, but also the scientific exercise plan after the product's analysis and evaluation. Digital intelligence is the main function of smart sports products, which can help participants better understand their own body structure, identify problems in the exercise process and correct them at the first time by presenting scientific digital analysis.

4.2.3 Smart sports lay the foundation for the enrichment of traditional sports expressions

In traditional sports, the integration of participants, organizers, and equipment requires the right time, the right place, and the right people to achieve the desired training effect. Smart sports, on the other hand, can create virtual scenarios that integrate the participants, the training venue and the equipment needed for the training process, which is referred to as visual integration. For example, smart glasses, smart bracelets, smart running shoes, smart arenas, smart trails, etc. are all available in the market today with the function of visual field integration. Take the smart sports product of live skiing as an example, it can adjust the simulated wind speed through the bladeless fan on the head, and the kinesthetic module on the legs can provide real-time feedback on bumps, etc., so as to simulate the touch, visual sense and kinesthetic sense of skiing for the participants and create a sense of immersion.

In the current environment of comprehensive fitness, smart sports are more likely to inspire people to actively participate in physical exercise, and it is undeniable that traditional sports do have advantages in terms of the experience of contact with nature and the release of one's own nature, but the lack of personalized features and professional guidance makes it a minority activity. Smart sports, while inheriting the advantages of traditional sports, also enrich the expression of traditional sports, allowing everyone to achieve fitness in the game and find entertainment in fitness sports. It really realizes the purpose of intelligent traditional sports and realistic online games.

5. Smart sports and traditional sports integration development response strategies

5.1 Strengthen the application of modern information technology in sports

First, we should strengthen the research and development of intelligent products. New technologies such as cloud computing, big data, somatosensory control, VR technology, and AR technology have been developed significantly in the last decade. For example, there is a smart rowing app in the market, which is a good integration of intelligent technology and traditional sports, allowing participants to know their own training progress, and at the same time, they can compete with friends in online challenges, which increases the fun. Second, it promotes the widespread popularity of smart sports. Currently, China is promoting online fitness programs that allow participants to book gyms, choose their favorite trainers, and exchange tips with other participants using mobile apps. In addition, we should build smart sports equipment and smart wears offline to provide corresponding applicable interfaces, improve the construction of network cloud storage database, strengthen network security protection, establish residents' health records and maintenance measures to protect the privacy of participants' sports data, and also try to establish a channel for the integration of sports and medicine. Finally, the establishment of a big data platform for residents' health and the promotion of the integration of smart sports and traditional sports. In the context of national fitness, the construction of a healthy China is also being implemented. Once the national health profile is established, modern information technology can be used to analyze the residents' health and provide scientific exercise programs based on their current physical conditions, and when the sports-medicine integration channel is truly connected, medical knowledge can be combined to provide treatment programs, thus promoting the development of a healthy China and protecting the residents' health.

5.2 Increase the regulation of intelligent sports industry

With the national fitness movement in full swing, the popularity of smart sports continues to rise, but smart sports have only recently emerged and there is no industry regulatory system in place. There are two sides to everything, and the same is true for technology products, which can pose unpredictable risks if not used properly. Smart sports products use information technology to provide participants with guidance for exercise, but if used inappropriately, this information technology can in turn limit the participants' development [5]. For example, the security of personal physical exercise data can damage the legitimate rights and interests of users if the data is illegally bought and sold for profit, resulting in data leakage. In addition, inaccurate data can lead to inappropriate training instructions and wrong decisions, which can cause serious losses and even life-threatening consequences for participants. Therefore, the industry should establish safe production standards for intelligent sports products and corresponding codes of practice, and improve relevant laws and regulations to avoid problems in the process of integrating intelligent technology with traditional sports.

5.3 Solving the problems facing the development of intelligent sports

First of all, smart sports are currently developing too fast and there is an uneven development. There is a big dilemma to promote intelligent sports comprehensively. Intelligent sports is a brand new thing, and nowadays it is only rapidly developed in the first-tier big cities, but it is difficult to popularize in the backward areas. To solve this problem, we need to speed up the development of intelligent sports products with good quality and low cost, further expand the social promotion of intelligent sports, and strengthen the construction of sports public facilities. Secondly, the lack of talents restricts the intelligent development of traditional sports. The development of intelligent sports is a cross-sectoral combination of science and technology and sports, which requires the cultivation of complex talents. To solve this problem, it is necessary to strengthen the integration of different related disciplines and professions, actively promote the exchange and cooperation between multi-disciplinary and multi-professional talents, and cultivate and reserve more comprehensive talents needed for the development of smart sports. Again, residents are skeptical of smart sports. Smart sports have been developed for a relatively short period of time and are a very young form of sports,

so people's recognition and acceptance of them needs to be improved. Combined with negative events such as information leaks, it is inevitable that people have doubts about the use of technology. In order to solve this problem, we need to increase the publicity of the society and upgrade the intelligent fitness methods of traditional sports. Finally, the homogenization of smart sports products seriously reduces people's enjoyment of using them. With the increasing number of smart sports products in the market, the homogeneity of functions has become a major pain point, making the products unattractive. To solve this problem, we need to rely on the continuous progress of science and technology, and at the same time increase the mutual integration between sports industry and other industries, and accelerate the interconnection between multiple fields and multiple functional devices.

6. Conclusion

In the context of national fitness, only the integration of smart sports and traditional sports development, the pursuit of higher level and quality development can meet the needs of the public fitness, and the mutual integration of the two is the inevitable choice for the future development of the sports industry. Smart sports are the deepening of traditional sports in the current era. Smart sports can break the geographical restrictions of traditional sports, create conditions for the personalized development of traditional sports, and lay the foundation for the enrichment of traditional sports expressions. Strategies for the integration of intelligent sports and traditional sports: strengthen the application and implementation of modern information technology in sports, develop more intelligent sports products, and actively build intelligent sports venues; increase the supervision of the intelligent sports industry, which can only improve the development efficiency of the intelligent sports industry by continuously strengthening the supervision; solve the problems faced by the development of intelligent sports, such as the lack of wide coverage of intelligent sports and the lack of complete intelligent facilities and equipment. Intelligent facilities and equipment are not complete. Only through the deep integration of intelligent technology and traditional sports can we usher in a new era of intelligent sports development.

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