

# Development of Intelligent Technology for Sports Training

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## ABSTRACT

Intelligent technology is a new computer technology applied in the field of sports in recent years, which can effectively improve the effect of sports skill training. This paper analyzes the characteristics of intelligent technology, describes in detail the importance of virtual reality technology in sports skill training, and on this basis, analyzes the application means of intelligent technology in sports skill training, which is mainly manifested in three aspects: the comparison between sports skill action virtual and reality, the comparison between sports skill action virtual and virtual, and the realization of remote interactive training. The purpose is to promote the development of sports by analyzing the application of intelligent technology in sports skill training.

**Keywords:** *Intelligent technology; Skill training; features; athletic sports.*

discipline development. In sports training, physical education

## 1 INTRODUCTION

Sports training is rising with the holding of modern Olympic Games and the development of competitive sports. As an organic part of sports, sports training absorbs and applies more and more advanced knowledge and technology in other scientific fields, and enriches its own theory and training practice. Therefore, in the process of sports training, athletes are required to not only master certain scientific knowledge, but also have the ability to apply these knowledge to sports training practice. Only athletes with a high level of knowledge can continuously understand the general laws of sports training and the special laws of sports in the practical activities of completing training tasks, more effectively accept advanced scientific knowledge and training methods, complete more difficult training contents and tasks, and then more effectively improve the level of sports technology.

Intelligent technology has been applied and become the main communication tool between people in modern society. Its infiltration has gradually changed the relationship between people, between people and society, and changed the structure of society. Specific changes in a discipline are mainly required by the constraints of

teachers, as the main judges, generally judge the effect of athletes' training according to their own naked eye observation, but this standard is easy to produce errors. The standard of Beijing coaches is not a fixed rational procedure.

According to Zhong BINGSHU's research, at present, in competitive sports, the research hotspots of sports technology in various countries focus on two fields: video analysis of sports technology and three-dimensional virtual simulation of sports technology. Among them, the three-dimensional simulation of sports technology is an experimental technical science that reproduces the subtle links of the technical actions of excellent athletes, the training intention of coaches, the organization scheme of managers and the training process of athletes through computer virtual reality technology, so as to achieve the interpretation, analysis, prediction, organization and evaluation of the sports system. Intelligent technology is dynamic, procedural and stable. The effect of sports training can be strictly standardized within a certain range. It is this effect that can improve the scientificity of sports training. This paper consists of the following parts. The first part introduces the relevant background and significance of this paper, the second

part is the related work of this paper, and the third part is research on Intelligent Technology in sports training. The fourth part is application of intelligent technology in sports skill training. The fifth part is conclusion.

## 2 RELATED WORK

In this paper, we aim to development of intelligent technology for sports training.

Biswas s proposed development of microcontroller based smart grid framework[1]. Samigulina g a et al. proposed development of a unified artificial immune system for intelligent technology of complex industrial automation objects control in the oil and gas industry[2]. Liu c proposed the application of intelligent technology in traffic automation control system[3]. Omar hussein salman et al. proposed mohammed imad aal-nouman. A review on utilizing machine learning technology in the fields of electronic emergency triage and patient priority systems in telemedicine[4]. Kwonsang sohn et al. proposed technology acceptance theories and factors influencing artificial intelligence-based intelligent products[5]. José antonio marmolejo-saucedo et al. proposed intelligent computing in science and technology[6]. Zhe zhao et al. proposed artificial intelligence based tracking model for functional sports training goals in competitive sports[7]. Cui cui proposed using wireless sensor network to correct posture in sports training based on hidden markov matching algorithm[8]. Johannes morgenstern proposed einsatz des intelligent cluster index in verteilten, dezentralen nosql-systemen[9]. Ge zhonglin proposed research on the intelligence characteristics of chinese juvenile volleyball players[10].

In essence, intelligent technology is an advanced computer user interface technology. By providing users with visual, auditory, tactile, taste and other intuitive and natural real-time interaction means, it facilitates the human-computer interaction to the greatest extent, without the need for complicated keyboard input, so as to improve the work efficiency of the whole system. There are three basic features: immersion, interaction and imagination, which is commonly referred to as "3I". The relationship is shown in Figure 1.

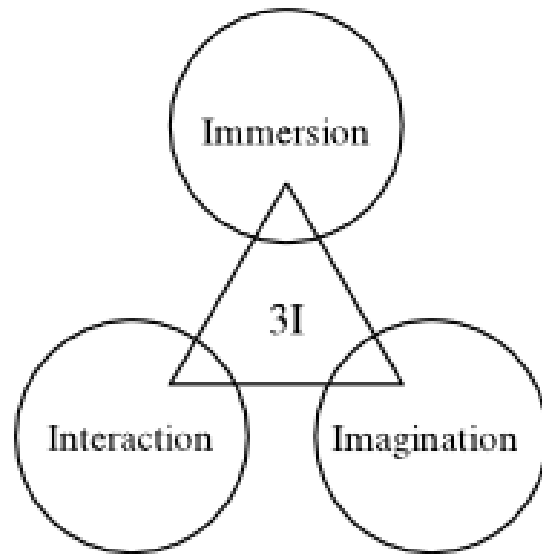


Figure 1 Struts frame structure

Three basic characteristics and relationships of Intelligent Technology

### 2.1 Intelligent training under the new theory of sports training and its significance

#### (1) Connotation of intelligent training

Intelligence is the combination of intelligence and ability. It is the combination of stable psychological characteristics to ensure people to effectively understand objective things and successfully carry out practical activities. Intelligence is the synthesis of stable psychological characteristics to ensure people's effective cognitive activities, including five basic factors: observation, memory, imagination, thinking and attention; Ability is the synthesis of stable psychological characteristics to ensure people's successful practical activities, including five basic abilities: organizational ability, planning ability, practical operation ability, adaptability and creativity. Sports intelligence is a kind of intelligence. It refers to the ability of athletes to participate in sports training and competition based on general intelligence and multi-disciplinary knowledge including sports theory. It is an important part of athletes' overall competitive ability. The so-called sports intelligence training is to meet the needs of modern competitive sports training, train and cultivate the constituent factors of sports intelligence purposefully and systematically, and organically com-

bine them to improve the level of athletes' sports intelligence.

### (2) The significance of intelligent training

With the high differentiation and integration of modern scientific development, the infiltration of advanced knowledge and technology of relevant disciplines into the field of sports training has accelerated the scientific process of sports training, promoted the growth of sports performance, accelerated the development of sports talents, and forced athletes and coaches to accelerate the development of their own intelligence to adapt to the current scientific revolution. In a sense, competitive sports can be regarded as a career with physical strength and intelligence as the soul. Science is the crystallization of wisdom and man is the carrier of intelligence. Only by strengthening intelligent development and knowledge updating can we advance bravely. The International Institute of futurology, ruvernel botu, said: "tomorrow's capital is intelligence." The 21st century is the era of information and intelligence revolution; The 21st century is the century of information and intelligence revolution. As the "window" of the comprehensive strength of politics, economy, culture, science and technology of a country and nation, competitive sports is also facing the opportunity of development and improvement. The proposal and improvement of intelligent training is a milestone for the further improvement of sports training theory. The rapid progress of science and technology in the fields of information science, human life science, material science and humanities provides fertile soil for intelligent training, and strongly supports and guides the faster development of competitive sports.

## 2.2 *Multi perception*

Multi perception is the most basic feature of intelligent technology. The supporting components of intelligent technology are computer software, hardware and a variety of sensors. The three cooperate to complete the collection of various information and images. The collection process can be called multi perception book. In addition, virtual reality technology can also perceive non-specific information such as force field, magnetic field and touch, and display the perceived information by means of image or atlas. These comprehensive perceptual effects make intelligent technology a specific information acquisition system, which shows its multi perceptual characteristics.

## 2.3 *Interactivity*

Virtual reality technology can increase the user's sense of reality, and even through some technical settings, let the user change all kinds of things in each link of the scene environment through their own wishes. This feature has completely changed the mode that people can only passively accept the signal sent by the computer, increased the interaction of users, and can communicate with virtual things through special equipment according to the wishes of users.

The greatest help of intelligent technology to mankind is that it can help users enhance their ability of thinking and imagination to a great extent. Through intelligent technology, people can turn some actual or illusory ideas into real environment or things, so as to help people open their imagination space and cultivate their imagination ability.

# 3 RESEARCH ON INTELLIGENT TECHNOLOGY IN SPORTS TRAINING

## 3.1 *Impact of intelligent technology on teachers and students in sports training*

The competition of sports requires talents with certain sports potential to play an excellent performance on the field and win. Therefore, to ensure the effect of sports training, we first need to select talents with sports potential. It is necessary to standardize the sports material selection, while the traditional sports material selection is mainly based on the results. After intelligent technology is widely used, material selection can be realized through intelligent technology. When selecting the excellent athletes of corresponding sports events, we can quantify the physical indicators and sports indicators required by sports athletes. Athletes need to meet the corresponding conditions before they can enter the training process, which ensures the purpose of scientific selection.

Intelligent technology not only affects the process of selecting sports talents, but also affects the subject and object in the process of sports training. As a coach of sports training, after intelligent technology is integrated into sports, they need to use intelligent technology to judge the effect of athletes' training, and explain through intelligent technology in time according to the situation

of sports training. On the one hand, intelligent technology facilitates the communication between athletes and coaches, on the other hand, intelligent technology also improves the scientificity of sports training. Coaches need to use intelligent technology to improve their teaching status, and students can also improve their ability through the advantages of intelligent technology.

### 3.2 *The role of intelligent technology in sports training*

Intelligent technology can cover the whole process in sports training. Intelligent technology provides a convenient communication tool for the communication between teachers and students. In sports training, intelligent technology provides technical tools for education and training, which can timely correct sports misunderstandings and improve the scientificity of sports.

Firstly, in sports training, intelligent technology can help athletes obtain scientific guidance. In the traditional training, athletes will carry out specialized high-intensity training according to their proficiency of a certain skill, and the athletes' own training can not correct the mistakes in sports training in time because of the lack of scientific analysis, which leads to a lot of misunderstandings in sports training. To ensure that the problems can be solved in sports training, athletes need to be standardized with the help of corresponding technical indicators. Intelligent technology can help athletes obtain corresponding standards, so as to standardize their sports training details.

Secondly, the application of intelligent technology in sports training can help coaches improve the efficiency of training. When intelligent technology has not been adopted in sports training, the coach will repeatedly emphasize a problem in sports training, and the effect is that this problem has not been completely corrected. Athletes may pay attention to the problem, but the specific causes and operation technology of the problem can not be understood in time, The coach's energy and time are limited, and he can't explain every athlete in detail one-on-one. With the help of intelligent technology, coaches can decompose the teaching content with the help of technical tools, and athletes can refer to videos to improve their sports coordination. The coach can focus on the analysis of a certain problem, so as to optimize the effect of sports training.

The application of intelligent technology in sports training can realize the horizontal and vertical comparison of athletes' training effect, which is conducive to improving the effect of sports training. In the use of intelligent technology to assist sports training, athletes can store each sports training data and compare these data over a period of time, which is a longitudinal observation of the individual training effect of athletes, so as to reflect on the process and effect of sports training, which is conducive to improving the training efficiency of athletes. Horizontally, the stored data of athletes' sports training can also be used to realize the comparison between athletes. Athletes can use the data of sports training to observe the training process of competitors, strengthen the understanding before the competitive process, and take targeted measures.

## 4 **APPLICATION OF INTELLIGENT TECHNOLOGY IN SPORTS SKILL TRAINING**

### 4.1 *Comparison between sports skills and virtual reality*

In sports skill training, a very important content is to improve and improve technical sports movements through professional skill training, so as to make them more standardized and practical. Through the implementation of this means, we can improve athletes' Sports literacy. With the development of computer technology, many regions and countries have introduced intelligent technology and established virtual simulation system. This simulation system can analyze the movements of athletes' skill training, find the connection points with defects in the movements, and then continuously improve and improve through later practical training.

In the process of practical application, we should fully grasp the specific use methods of computer intelligent technology, and formulate training programs in combination with athletes' Sports literacy. At the same time, standard skill movements should be added to the virtual system and decomposed by computer, so that athletes can first have a full and intuitive understanding of skill movements before training and form a deep impression in their minds. Then in the actual sports skill training process, we should find out the shortcomings of athletes'

movements. On the one hand, it can deepen athletes' understanding of themselves, on the other hand, it can also promote the mutual communication between athletes and jointly enhance the effect of sports skill training.

#### 4.2 *Virtual and virtual comparison of sports skills and movements*

The development of sensor technology has made extremely brilliant achievements, but it is undeniable that there are still some defects in the perception process of some subtle signals by real sensor technology. In order to better analyze sports skill movements from the details, it is difficult to meet the needs to compare virtual movements with real movements. Therefore, we can use computer intelligence technology to build and compare the information between standard actions and actions generated in actual training on the computer. Through the comparison between virtual and virtual, we can find the differences through the computer. The comparative analysis between virtual and virtual using computer intelligent technology can improve athletes' cognition of specified actions to a certain extent, so as to improve the efficiency of operation skill training.

#### 4.3 *Realize remote interactive training*

Virtual reality technology can achieve remote interactive training, which completely makes up for the inconvenience of remote training and provides logistics support for daily training. Nowadays, many sports training still use traditional competitive events and have little contact with advanced sports training. It is difficult for athletes to get all-round sports training, and the interactive role of virtual reality can make up for this, improve athletes' training level and increase sports. The interactivity of intelligent technology can also analyze the training results. Through comparison, we can fully understand our own shortcomings and achieve the role of eliminating the rough and extracting the fine, so as to find the problems existing in sports skill training, improve the training quality in combination with the current situation of training, so as to improve the athletes in an all-round way. At the same time, through intelligent technology, athletes from different regions can compete in sports, so as to stimulate training enthusiasm and improve training effect.

## 5 CONCLUSION

With the rapid development of science and technology, intelligent technology has been widely used in many fields of society and achieved good results. Even its research results have appeared in sports training all over the world. Through intelligent technology, we can meet the deficiencies in sports training and comprehensively improve the ability of athletes, which can not only improve the quality of daily training, but also promote the development of China's sports science and contribute to the progress of the national sports field.

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