

Artificial Intelligence and Modern Sports Education Technology

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Abstract—*Artificial intelligence is a comprehensive cutting-edge discipline which is developing, and an important research direction in the fields of science computer and technology. This paper uses the principles and methods of artificial intelligence on the basis of describing the concept and research areas of artificial intelligence. It focuses on in-depth analysis and discussion of applicable perspective and development of artificial intelligence in modern physical education technology, and raises the corresponding development strategies to the use of artificial intelligence in modern sports educational technology, in order to provide the theoretical support for the establishment and development of modern physical education technical disciplines.*

Index Terms—*artificial intelligence; physical teaching; technology*

1. Introduction

"Gear the education to the modernization, the world, and the future". As for the modernization, on the one hand, it refers to serve the modernized construction; on the other hand, it includes modernized educational thought and concept; moreover, it also includes the application of modern technical means. With the development of human society, more and more scientific and technological achievements go rapidly into the field of physical education teaching. This affects not only the change of physical education content and teaching methods, but also the teaching concept and teaching model of physical education, and then the reform of the system and type of organization in physical education. In the modern educational technological practice, how to

deal with the educational technology-related issues includes, how to use the existing results of educational technology, bring physical education teaching resources into full play and improve the efficiency of physical education in order to serve the overall reform of physical education, which also has become an urgent problem to be solved. Therefore, research in physical education technology is necessary and pressing.

Since the first day the artificial Intelligence was given birth, it has aroused people's unbounded marvelous imagination and longing. Along with social progress and innovation of knowledge, artificial intelligence has become a morning star of intersecting development of subjects, with its rays of light, its concepts, methods and technology getting extensive infiltration and integration of all walks of life. Physical education technology, as an Interdiscipline itself, involves sports, education, computer science and many other areas.

Artificial intelligence, as a branch of computer science, has many application areas and research topics. Many of its research topics and research techniques represent the development of the field of computer technology, which can be used into the physical educational technique and can solve many pragmatic problems we are confronted with in the physical educational area. As the development of information technology, computer network and Internet technology, the physical educational technology is moving into the era of the information society and network economy,

which has made more specific research objectives and research subjects for artificial intelligence.

2 The Concept and Research Areas of Artificial Intelligence

2.1 The Concept of Artificial Intelligence

AI (Artificial Intelligence, called A1) is the course that researches into understanding and imitation of human intelligence, intelligent behavior, and the law of intelligent behavior. Its main task is to build intelligent information processing theory, and then design some computer systems which can demonstrate some of the similar acts of human intelligence. Artificial intelligence capability is intelligent human intelligence-related behavior performed by intelligent machines usually, such as judgments, reasoning, proof, identification, perception, understanding, communication, design, thinking, learning and problem solving and other thinking activities.

2.2 The Research Areas of Artificial Intelligence

Artificial intelligence is a comprehensive cutting-edge discipline which is developing, an important research direction in computer science and technology field, and a challenging science which means the people who is engaged in this work must have a knowledge of computer, psychology and philosophy, machine learning, computer vision and so on. In general, the purpose of artificial intelligence is to make the computer machine thinks like a man. The research in artificial intelligence is associated with specific areas, the main of which includes expert systems, machine learning, pattern recognition, natural language understanding, automated theorem proving, automatic programming, robotics, game theory, intelligent decision support systems and artificial neural networks. In short, it is application-oriented. With the development of artificial intelligence, it is been used in the field of artificial intelligence in the education and teaching by people.

3 Prospects and Development Trends of Artificial Intelligence in the Modern Technology and Physical education

3.1 Multimedia Computer Assisted Instruction MCAI

Multimedia Computer Assisted Instruction MCAI (short for MCAI) is the product of combination of multimedia technology and the CAI technology after the development of multimedia in 90 years. Multimedia Computer Assisted Instruction's realization entails utilizing artificial intelligence and processing complex procedures, such as natural language understanding, knowledge display, reasoning method, application of some artificial intelligence techniques, algebra explanation, symbols, all of them being used in MCAI system in order to improve its intelligence and practice. In Physical Education, the use of multimedia computer-assisted instruction can realize three-dimensional modeling, graphic simulation, reproduction of the language sounds, reproduction of static circumstance, showing the dynamic process and promotion of interaction between the two sides of teaching. Its main purpose is to provide students with different physical stimulation and control the direct teaching environment. Rational use of multimedia computer assisted instruction can enable students to maintain the excitability of the nervous system to different stimuli, to master sports knowledge, technology, and skill formation, to overcome the atmosphere where students are tired of study in traditional teaching. In addition, through the use of multimedia computer assisted instruction, it can also broaden their horizons, develop student's intellectual, and promote their development of personality. Multimedia computer-assisted instruction for physical education undoubtedly has a great advantage, and it represents new trend of the current even the whole physical educational technology development.

3.2 Development of Practical Physical Expert System

The expert system, as an important branch of artificial intelligence, achieved a major breakthrough that artificial intelligence going from the theory to practical application, from the investigation of general thinking of people to using the expertise to solve specific problems. Artificial Intelligence can be considered as computer intelligent programming system with a class of

specialized knowledge and experience, with its capacity from its own expertise, generally imitating the complex problems can only be resolved by experts with the knowledge display of artificial intelligence and knowledge reasoning to have the same problem-solving ability of the expert level. The reason why we choose the expert system as the weak point of the artificial intellectual research in the field of physical education, is no matter in theory or technique, the expert system can be counted as the most sophisticated branch of the artificial intelligence, the most noticeable research results of the artificial intelligence in practical applications, and the most active and fruitful field of study of artificial intelligence. The development of the Sports utility expert system can promote sport utility artificial intelligence continuously develop from the abstract to the concrete, guide sports workers to understand and master the smart technology step by step, and gradually developed a higher intelligence level of intelligent systems. Only in this way can it meet the objective law of development of things, ensure the practical artificial intelligence to develop in a healthy and order manner.

3.3 Development and Application of Virtual Reality Technology

Virtual reality technology is a computer simulation technology enabling create and experience a virtual world, which combines computer graphics, multimedia, artificial intelligence, human-machine interface technology, dynamic device networks, parallel processing technology, and other latest development results of information technology branches, providing a strong support for we creating and experiencing the world. Virtual reality technology is not just a medium or a high-end user interface, with the help of the virtual technology, people may get the emotional and rational awareness from the qualitative and quantitative integrated virtual environment, and thus make a profound understanding of the concept, generate new ideas, actively seek to receive information and bring a great play of human imagination. In recent years, virtual reality technology has been more widely used in the

military, education, design, real estate, archeology, art, entertainment and many other fields. The application of Virtual Reality in Physical Education focused on: using virtual reality technology features to build a simulation of artificial intelligence "expert" systems, such as the sports-based expert system prescription site established by Shao Guihua and other experts; using the performance of ability of three-dimensional space of virtual reality technology to establish human motion model; virtual reality technology can not only be used to simulate the real world, real world simulation, but also can be used to transcend the real world, enhance the feeling of reality participants to enrich perceptual knowledge, strengthen the teaching content understand and master.

3.4 The Application of Basic Theory of Artificial Intelligence in Physical Education Technology

Being proposed as a discipline initially by the game and theorem proving, Artificial Intelligence received a lot and continued to thrive from other subjects. However, in such a relatively young discipline, many issues are still worth studying, particularly basic theoretical research in the applicative field of modern physical education teaching. The modern application of Artificial intelligence technology in physical education combines many related disciplines, particularly the newly concept and theories, which are built with the development of information technology. Infiltrated with each other, they formed a proper basic theoretic system and gear the sustainable development of the artificial intelligence in the field of physical education. If derived from this basic theoretical system, this kind of sustainable development will become water without source. Therefore, to strengthen the research in basic theoretical system is the foundation of the survival and development in the field of modern physical education for artificial intelligence technology.

4 The Basic Strategy of Using Artificial Intelligence in the Modern Technology of Physical Education

Physical Education is the main theme of the college Physical Education work and an important part in developing comprehensive human resources. By

adopting the modern educational technology, theoretically on the one hand, not only the teaching contents can be enriched, but also the change in people's concept and traditional teaching model can be achieved; on the other hand, the reality can be practically guided, to promote and facilitate the reform of the physical education and its continuous development. In the mean while, with the characteristics of model, visualization and repetition, physical education will have a brighter future in the application of sports.

4.1 The Correct Understanding of Ideological Changes in Modern Physical Education Due to Artificial Intelligence Techniques

To have a correct understanding of artificial intelligence technology, we must first address the opportunities and challenges that modern technology brings to the physical education. We should address the enormous dynamic role that scientific and technological revolution brings with, and cannot make the problem too absolute to the extent of the "technological determinism". Artificial intelligence is not only the product of the modern physical educational innovation, but also the object compound of human creation, comprehensive ability and imagination. It promotes human creative thinking and ability in return, and reflects the values more prominently. For the past 40 years, artificial intelligence has developed greatly, and caused increasing attention of different academic disciplines and scholars. It having made great progress in the application of the field of education, such as representation and access in artificial intelligence-based knowledge; it includes numerical computation, symbolic computation and symbolic computation of functional mapping. Undoubtedly, the application of these technologies will contribute significantly to the development of modern educational technique.

4.2 Actively Promote the Informationizing of Physical Education Teacher's teaching; Change Their Ideas to Raise Awareness

The Teaching Informationization of Chinese P.E Teacher refers to, under the guidance of the modern physical education theory, widely adopting educational

technology based on multimedia and network communication in all fields of physical education, to actively develop and fully apply formation technology and information resources, and to achieve optimal physical education. In the information technological environment, P.E Teachers need not only modern technology, but also brand new concepts and theories, to re-examine their teaching and guidance in all areas and aspects. In other word, modernization in the thinking area is the key to achieve modernization in sports education area. Therefore, only changing the attitude of PE teachers' view of knowledge, talent, teachers and students, study concept, class concept and assessment, a "people first" philosophy of education can be brought into such a full play that we can cultivate the high-quality and innovative sports talents that the information age requires.

4.3 Comprehensively Improve Education Technology Literacy of the P.E. Teacher

Educational technical literacy is a person's overall level of acknowledge, method , application and evaluation of educational technical theory. It includes the mastery of basis knowledge and skills of educational technology, problem-solving abilities by using of educational technology, and his understanding of awareness of educational technology, attitude and social responsibility. Physical Education technology is sally port of Physical Education. The establishment of new educational concepts, innovation of educational model, and reform of education system, are inseparable from participation of physical education technology. All persons involved in the process of physical education, including teachers, students, sports administrators and sports education technology professionals, need to have a certain level of education technology literacy, so that the physical education reform can effectively promote the further development.

4.4 Carry Out Various Forms of Technical Training in Physical Education

Confronted by the applications of information technology in physical education, such as multimedia and computer network, the majority of PE teachers still

lack of preparation , and need a clear understanding of the major changes of teaching thinking, teaching model, and significance of the teaching method, which are caused by the development of information technology. Therefore, we should strengthen imparting knowledge of information technology on the physical education teachers. In the same time the direct users and beneficiaries of information technology are teachers, so the emergence of information technology provides an opportunity for teachers to display their talent. Revitalization of education lies in the teachers, while the revitalization of the country lies in education. It is very necessary to strengthen the learning and training of modern educational theory and technology for the majority of P.E.teachers.

4.5Put Together the Research Power of Educational Technology, to Form a Unified Research Teams

Under the tide of educational informationization, the educational technology in China develops very quickly. A large number of experts and teachers take part in the modern educational technical research. With their different disciplines and backgrounds, the research teams continue to grow. On the base of practical and technical understanding of education, experts in all aspects of their work start teaching and research activities, also mainly started in their own working unit. However, between theses working units, the academic exchanges and communications are quite poor, and research forces also scattered. Especially in technology research of physical education and its cross-application with other disciplines, some problems still exist, but it is also full of hope. In order to meet the co-existing challenges and opportunities, the majority of sports workers and managers must proceed from the actual physical education, put together the research power, form a unified team of research personnel, and establish a sound environment for modern educational technology, so that we can enhance the full application of artificial intelligence in sports, promote and deepen the comprehensive development of physical education teaching and reform.

ACKNOWLEDGMENT

Fund Project: Humanities and Social Sciences in Hubei Province funding issues, "The role of sports culture in building a socialist harmonious society" (2009b411)

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