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ITJ

ISSN 1812-5638

INFORMATION TECHNOLOGY JOURNAL

ANSI*net*

Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Analysis on the Application of Artificial Intelligence Technology in Modern Physical Education

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Abstract: In this study, the artificial intelligence and modern technology of physical education have researched and discussed which in order to provide the ideal theoretical basis for the modern technology of physical construction and development. As we all know, artificial intelligence belongs to a strong frontier disciplines which is developing but also one of the main direction of the computer and its related technologies interdisciplinary research, influencing the entire teaching progress. Artificial intelligence has many advantages in the application of teaching technology. At first, this study expounds the concept and category of artificial intelligence and then in-depth discuss and analyze the artificial intelligence application in the modern physical education technology vision and potential development, at the same time, it described the artificial intelligence encountered in modern sports educational technology applications problems and put forward the main strategy of artificial intelligence in the modern sports educational technology applications.

Key words: Artificial intelligence, modern education, physical education, education technology, virtualization technology

INTRODUCTION

At present, the progressive modernization of education in China but also in the world and the future-oriented and have achieved better education results. As far as the progressive modernization of education in China, mainly has two meanings: First, progressive services for the modernization of the education modernization and, second, educational modernization in addition to including those outside the modern educational concepts and ideas, modern education technology method is also included and are working hard on their applications in teaching. In recent years, China's science and technology development, human society has entered a phase of rapid development, education has achieved unprecedented development, making China modern physical education teaching more gradually applied in science and technology. Application of advanced science and technology in sports teaching, in addition to the impact such teaching content and teaching method of physical education but also changes the traditional concept of PE teaching mode and contributed to the modern physical education system in China and major changes in the organization. Of course, modern advanced technology and its application in teaching ideas in the teaching of physical education, tend to encounter some problems in practice and how to resolve these issues of educational technology, it is now must pay attention to. These include some of the

following aspects of the question: What is teaching technique results how to use; how can give full play to modern PE teaching resources effects; modern sports teaching how can we increase; how can we better serve the overall reform of modern physical education and so on. In order to address these issues, this article introduces artificial intelligence, application of artificial intelligence in it, are good to deal with and solve these problems, so as to enhance modern physical education (Burget *et al.*, 2012).

Artificial intelligence on human giant was already self-evident, it represents infinite possibility would raise at the beginning of the birth of humankind and the vision, in particular the progress and development of human society, combined with the accumulation of knowledge innovation, makes artificial intelligence Kai lamp, lighting up the world, to save mankind, leading mankind forward is huge. Therefore, in recent years, increase in research and exploration of human artificial intelligence. With the deepening human research on artificial intelligence, its concepts, methods, principles and techniques and all walks of life widespread integration and infiltration and artificial intelligence has become a more practical cross-discipline, has been actively used in the major colleges and universities. Technology and physical education also belongs to interdisciplinary, for example involving education, sport science and computer science, artificial intelligence is included in the subject of computer science, artificial intelligence technology and physical

education have been inextricably linked. In general, many research topics and technologies in artificial intelligence not only on behalf of the development of computer science and technology but also a strong manifestation of human progress while the advanced technique and its application in the technology of physical education, is provided for the problems encountered in physical education. In addition, the global computer network technology, information technology development and Internet technology, making sports educational technology has gradually entered the network and information age and this is for the application of artificial intelligence technology in modern physical education provided additional research topics and research goals (Rastovic, 2012).

The purpose of this study: Aims for providing an ideal theoretical basis for the perfect fusion of artificial intelligence and modern sports educational technology, in order to achieve the improvement of teaching effectiveness; the research content is: Through the interpretation of related concepts, the vision and application prospects of artificial intelligence in the modern physical education has been elaborated, then analysis the artificial intelligence problems facing the modern sports educational technology applications and then to seek the corresponding solutions.

ANALYSIS OF ARTIFICIAL INTELLIGENCE CONCEPTS AND SPECIFIC AREAS OF STUDY

Artificial intelligence: Artificial intelligence is a cutting-edge discipline; the subject appears, under the influence of a lot of, for example, cybernetics and systems science and information theory, computer science, philosophy and so on. The emergence of artificial intelligence, attached great importance to the cause of humankind and its tremendous achievement bringing humanity into a new era, artificial intelligence after the third industrial revolution is also considered one of the great revolution. Although artificial intelligence for a human brings a great deal of success and influence but there are no more precise definition but we can understand with AI (Artificial Intelligence, referred to as AI) is a study on understanding and simulating human intelligent, smart and laws of a course of conduct, whose main task is to build intelligent information processing theory to design can show some approximate the behavior of human intelligence computing systems. More popular argument is that artificial intelligence is mainly to research how to get the machine (mechanical) with listening, speaking, seeing, writing, thinking and learning ability of the human mind, such as a science (Behera and Mishra, 2012).

Study aspects of artificial intelligence: The frontiers of artificial intelligence is integrated more disciplines but it is still evolving, still others do not mature, whose main is in the computer and technology disciplines important research directions, with enormous challenges, the person who is required to perform this type of work must have the psychology, philosophy, computer science, computer vision and machine learning of knowledge. Artificial intelligence's main purpose is to let the computer machine can think like a human and their greater need to combine with all areas of research, specific research areas include: Machine learning, automated theorem proving, expert systems, pattern recognition, natural language understanding, robotics, automatic programming, game theory, artificial neural networks and intelligent decision support systems. In general, artificial intelligence is an application-oriented discipline, with its continuous development, mankind has been gradually applied in the teaching environment and achieved very good results and this article is intended to address the application of modern technology in physical education.

APPLICATION OF ARTIFICIAL INTELLIGENCE IN MODERN SPORTS TEACHING TECHNOLOGY VISION AND EXPLORATION OF THE DEVELOPMENT POTENTIAL

Multimedia computer aided instruction application of MCAI in the technology of modern physical education: Currently, most of MCAI in the teaching of multimedia computer-assisted teaching disciplines were involved and it was in the 90's of the last century after the development of multimedia technology, combination of CAI and multimedia technology. MCAI of multimedia computer-assisted teaching, namely Multimedia Computer Assisted Instruction, referred to as MCAI, mean you can get at the same time, processing, editing, storing and displaying two or more different types of information media technology. To reached while gets and processing and edit and storage and displayed two a above different type information, on needs with artificial intelligence, by virtue of artificial intelligence technology and complex of prepared program (such as knowledge said and natural language understands and reasoning method and related special application results and symbol synthesis and algebra description), achieved multimedia secondary teaching MCAI in modern sports education technology in the of practical of and smart of.

Now, in modern sports teaching and learning activities in China, plane using the multimedia computer-assisted teaching MCAI can reproduce, language simulation, stereoscopic image-based simulation, static rendering of sound reproduction,

dynamic process but would also facilitate teaching activities interactions between the two sides. MCAI with artificial intelligence and multimedia computer-assisted teaching so that, students in sports studies can accept a variety of stimulus, so that you can make the teaching and learning environment has been directly controlled, so as to protect students in the face of different stimulation, maintain excitability of the nervous system and ease of teaching activity active. Students in this type of atmosphere, better for sports knowledge and technologies, thereby creating good skills and able to overcome traditional teaching is highly susceptible to tired sentiment. In addition, multimedia computer-assisted instruction application of MCAI in modern sports teaching not only broaden students 'Vision but also can promote the development of students' intellect and personality, its application in the teaching of physical education will undoubtedly have great advantages, representing a new trend of modern physical education technology development (Mehr and Shirazi, 2012).

Development of virtual reality technology and its application in the technology of modern physical education: Virtual reality technology in currently of application range increasingly broad, its in modern sports education technology in the also gradually has application, its belonging to a can created and experience virtual world of computer systems simulation technology, its fusion has multiple information technology branch new results, these branch including has multimedia technology and computer graphics and artificial intelligence technology and dynamic manager network and people machine interface technology and the parallel processing technology, these are for virtual world of created and experience provides has is strong of support. Specifically, virtual reality is not a simple medium or high end user

interface but by virtue of the virtual technology, enabling humans to quantitative and qualitative integration of virtual environments to get some understanding of sense and sensibility, so as to enhance human understanding of the concept and generate new, actively to explore and to receive information, full human imagination to play out.

In recent years, virtual reality in education, design, military (Fig. 1), real estate and Archaeology (Fig. 2), entertainment and art, in all its aspects has a wide range of applications, make effects for all to see. Virtual reality technique and its application in the technology of modern physical education is mainly reflected in: Through artificial intelligence characteristics of virtual reality



Fig. 1: Application of virtual reality technology in the simulation of military training

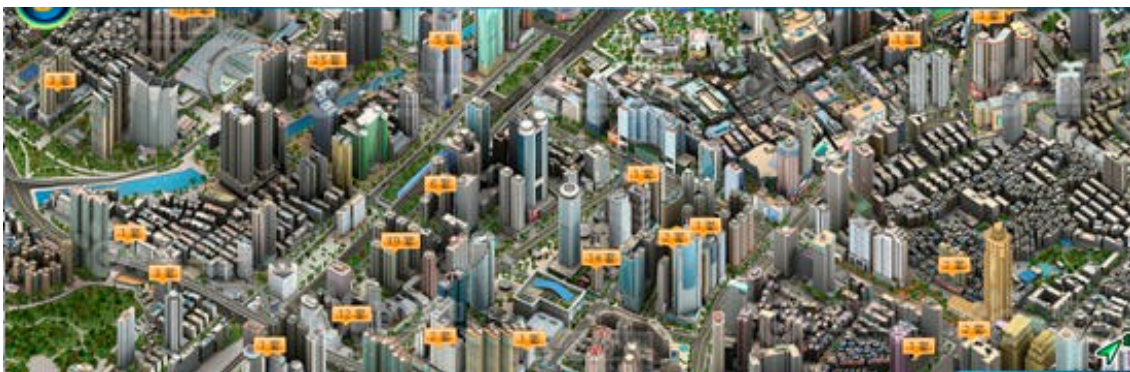


Fig. 2: Application of virtual reality technology in the real estate

technology to establish a simulation expert system, such as Shao Guihua, the establishment of sports prescription website based on expert system; using virtual reality technology of three-dimensional space of expression to build a human motion models and so on. In short, the use of virtual reality technology application in the technology of modern physical education, in addition to modeling and simulation of the real world, can achieve real-world beyond which can enhance the participant's perception of reality, to reach a wealth of perceptions but also can enhance the student's understanding and grasp of the content of physical education activities (Tang and Wu, 2012).

Physical education practical research and development of the expert system and its application in the technology of modern physical education: Expert system belongs to a branch of artificial intelligence is important, makes the emergence of artificial intelligence and expert system from theoretical research to practical applications and also to achieve a shift towards use of expertise from the discussion on the general thinking method for solving specific problems. In other words, the artificial intelligence can be thought of as a computer with specialized knowledge and experience of intelligent system and the capacity of this system mainly from expert knowledge, such expert knowledge, mainly by virtue of the knowledge of knowledge representation and reasoning in artificial intelligence to simulate that normally only experts can solve complex problems, to achieve the equal level to solve the problem of experts (Nasri and Gasbaoui, 2012).

So far, in the modern physical education technology application in artificial intelligence, expert systems are often a major breakthrough, both the theory and the technology, expert systems can be considered as one of the most mature branch of artificial intelligence and is implemented in practice, application of artificial intelligence to the most spectacular results, it has the most active and most fruitful in the study of artificial intelligence. Modern technology application in expert system of physical education, makes sports teaching and learning activities useful artificial intelligence gradually from the abstract to the concrete, thus contributing to more skilled workers to understand and master of physical education intelligent technology. Only in this way can be consistent with the actual development of things and to guarantee the development of sporting practical artificial intelligence more healthy and orderly.

Application of techniques based on theories of artificial intelligence in physical education research: Artificial intelligence is a discipline and the original is introduced by the game and theorems proving, coupled with its subject gets in a lot of other "nutrients", thus gradually grow and develop. Therefore, as far as the discipline of artificial intelligence, it is still very young; there are still many problems which we need to study and exploration, particularly in modern sports teaching application of basic research. Application of artificial intelligence in modern sports teaching technology, combines theoretical knowledge in a number of related fields, especially with the development of information technology continues to grow, new theories and new ideas continue to breed, combined with constant penetration and fusion, form the basis for a special theoretical system, thereby facilitating the application of artificial intelligence technology in modern physical education and development. Currently, such development sustainable but if separated from the preceding penetration and fusion of basic theoretical system, then this kind of sustainable development will be like a tree without roots, water, will not be able to continue to develop. For this reason, in the technology of modern physical education in order to promote artificial intelligence continue to grow, it is necessary to strengthen research and exploration of basic theories of this type of system, only captures the foundation and actively explore, to make modern technology development of physical education and service to the cause of physical education (Elhachimi and Guenoun, 2011).

APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN MODERN PHYSICAL EDUCATION POLICY ANALYSIS

School physical education, physical education activity is its main theme, as well as the main components of cultivating sports talents, have visual characteristics, such as resistance, demonstration and repetitive. Use of artificial intelligence in modern sports teaching activities and modern technology in physical education, PE teaching contents in addition to theoretically rich, changing traditional teaching patterns and ideas but also more realistic practical guidance, as a means of promoting the reform of the teaching of physical education. However, we should also see the current problems encountered in artificial intelligence in modern sports teaching activities; seize these issues in order to better contribute to the integration and development of both.

Problems in the artificial intelligence in modern sports teaching: Firstly, the increasing popularity of artificial intelligence but for most of the sports profession, this technology is very advanced, it needs not only of persons having special knowledge and should also have comprehensive skills in systems engineering and software development. But the conditions for workers who lack of computer skills is very harsh, even with a certain level of computer workers, lack of knowledge engineering theory and methods, will make its only in the artificial intelligence for the layman (Pignolo and Lagani, 2011).

Secondly, the artificial intelligence there is independence and the development of sports science itself which to a certain extent hampers both blend with each other. In other words, mastered artificial intelligence researchers might have not seen its broad application in sports and also mastered the skill of physical education workers have found potential applications of artificial intelligence in physical education. In short, the practical potential of artificial intelligence in physical education teaching value has not yet been excavated and most of the sports workers also use traditional skills to experience teaching and training mode, this conservative ideology and teaching is often underestimated or not open to new scientific and technological achievements which would increase the difficulty of universal artificial intelligence in physical education teaching.

Thirdly, artificial intelligence inherent incompleteness, even after decades of research and innovation, has achieved very good results but we still should see the present shortcomings and defects. For example, the branch of artificial intelligence natural language understanding, visualization and pattern matching is not perfect, many still stuck in a written report of research results or laboratory medium (Thakare and Singhal, 2011).

Achievement of study on the organic integration of artificial intelligence and modern physical education:

Response of artificial intelligence on modern physical education awareness of the enlightened mind change right. A correct understanding of artificial intelligence technology on modern thought of physical education enlightened by reform, modern science and technology in the first place to the opportunities and challenges of physical education, it is necessary to see the dynamic role of scientific and technological revolution of the immense and put an end to the problem absolute thereby providing technological determinism. Artificial intelligence is a major product in the technical innovation of modern physical education and human creativity, ability and imagination of object-oriented, its adverse effect on

humans, promoting the continuous improvement of human creative thinking and ability in order to achieve more practical value. Artificial intelligence from appears began, after thirty or forty years, made has great of development, caused has large discipline and the professional of increasingly attention, especially in teaching area of application, makes education teaching made has great of leap, like based on artificial intelligence of knowledge said and the access; numerical calculation and function drawing of meet calculation, these technology of application, in is large degree promoting has my modern education technology of continued development and improve.

Improving PE teachers' educational technology literacy. Education technology is a human grasp of theory and methodology of educational technology, application and evaluation of overall levels, including: Access to educational technology, the level of basic knowledge and skills for educational technology use of problem-solving skills, awareness and attitudes towards educational technology and educational technology to the understanding of social responsibility. All who participate in physical education (teachers, students and sports managers and so on) should have the relevant professional accomplishment, especially teachers which belongs to the transfer of educational knowledge; it must have the maturity and a wide range of professional accomplishment. As physical education, in order to strengthen the application of artificial intelligence technology in modern physical education, in its teaching and learning activities from the following ways to grasp (here an example of normal physical education activities).

Firstly, the modern technical content structure of sports education should highlight the characteristics of modern sports, should be based on competency standards, drawing on the course system construction of teaching content structure (Fig. 3, content structure of a normal modern physical education technology) (Jin *et al.*, 2010).

Secondly, the knowledge structure of modern technology in physical education curriculum structure of physical education should be based on modern technologies, module, knowledge from knowledge elaborated with the three dimensions of the learning objectives (as shown in Table 1, a modern technology course knowledge structure of physical education teacher's classes) (Blanquet, 2011).

Thirdly, the modern physical education technology is highly practical subjects, application of artificial intelligence, skill development is essential, also paying attention to students instructional design, courseware, classroom capacity and the choice of media

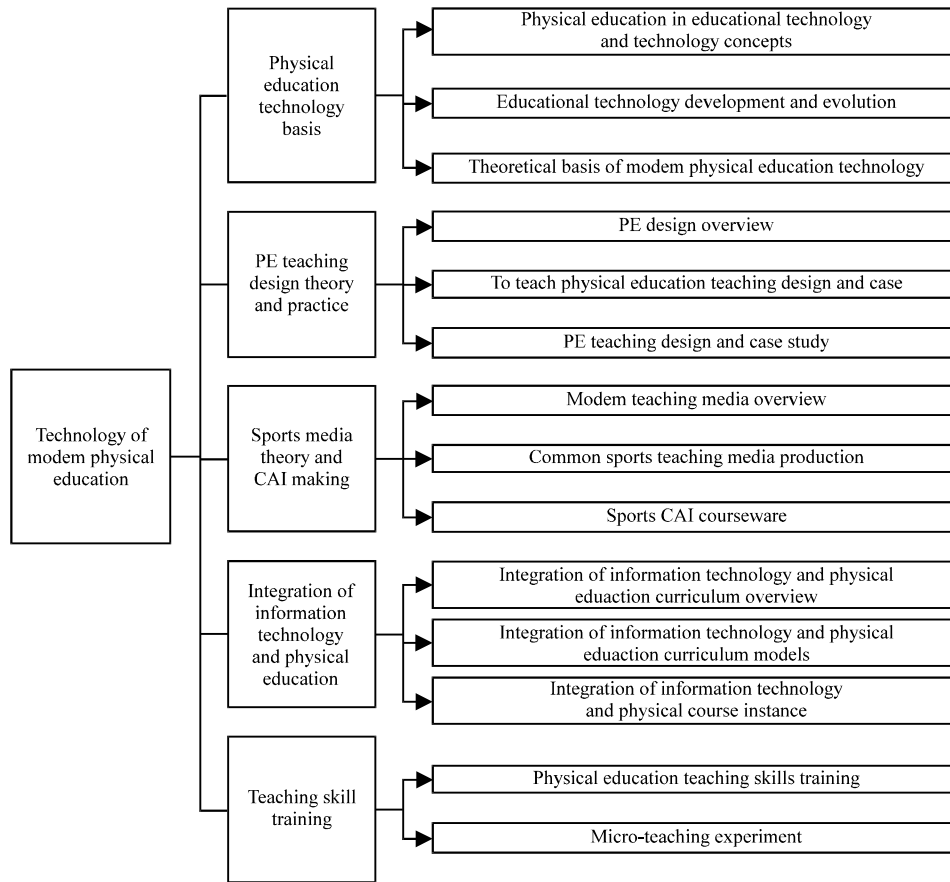


Fig. 3: Schematic diagram of content structure of a normal modern physical education technology

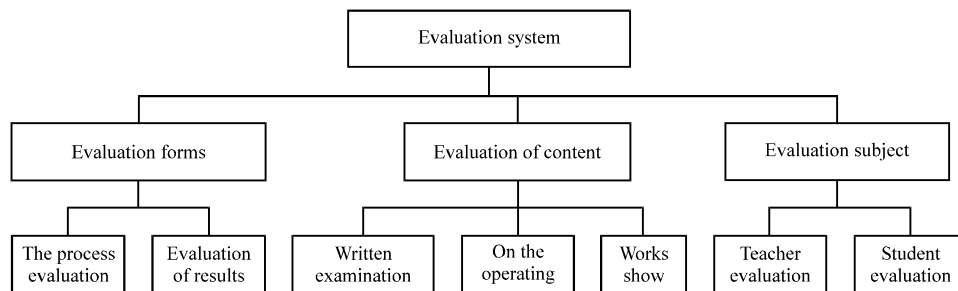


Fig. 4: A modern technology diversified curriculum of physical education teachers' class teaching evaluation system

and other aspects of culture (as shown in Table 2, a normal practical teaching of modern technology of education and sport structures).

Fourthly, modern technology in physical education teaching process should be designed to use a variety of learning content and organic combination of learning contents, methods, theories and scientific fusion media, rather than a single together.

Fifthly, modern sports education technology courses teaching evaluation design should have

belonging to multi evaluation system, on students for evaluation should change traditional single of course work mode, evaluation content should be used process evaluation and results evaluation phase combined of mode, evaluation forms is should for basic theory and basic skills operation and the teaching design results, respectively reflected in written and Shang machine examination and the results show, area, achieved teachers and students evaluation wanted to combined of integrated evaluation (as Fig. 4 by

Table 1: Content structure of a normal modern technology in physical education curriculum

Knowledge modules	Knowledge content	Learning objectives
Module 1: Fundamentals of physical education technology	<ol style="list-style-type: none"> 1. The concept of education technology and physical education technology 2. Educational technology development and evolution 3. The theoretical basis of modern physical education technology 4. The transformation and development of education in the information age 	<ol style="list-style-type: none"> 1. Awareness of technology and development of physical education 2. Theory of mastery learning theories, teaching, teaching media theory and law of motor skill learning 3. In recognition of teachers ' educational technology capacity in information age requirements
Module 2: Common sports teaching media	<ol style="list-style-type: none"> 1. Overview of modern teaching media 2. The commonly used media and physical education equipment 	<ol style="list-style-type: none"> 1. Understand the concepts of instructional media and meaning 2. Master of common sports teaching media and device using the method
Module 3: Physical education instructional design	<ol style="list-style-type: none"> 1. Overview of PE teaching design 2. Physical education instructional-design theories and models 3. "To teach" PE teaching design 4. "To learn" sports teaching design 	<ol style="list-style-type: none"> 1. Knowledge of instructional design concepts and applications 2. Access to sports instructional-design theories and models 3. Master "to teach" method of physical education teaching design 4. Master "to learn" method of physical education teaching design
Module 4: Physical education theory and practice of multimedia CAI courseware	<ol style="list-style-type: none"> 1. Overview of multimedia CAI courseware 2. The steps and methods of courseware design and development 3. The simplest animation 4. Physical education multimedia courseware making 	<ol style="list-style-type: none"> 1. General steps to master the design and development of physical education classes and methods 2. Master visible development tools used 3. Starting from the actual design, development-related courseware
Module 5: Integration of information technology and physical education	<ol style="list-style-type: none"> 1. The integration of information technology and physical education curriculum overview 2. Integration of information technology and physical education curriculum models 3. Integration of information technology and physical course instance 	<ol style="list-style-type: none"> 1. Integration of information technology and physical education curriculum significance 2. Integration of information technology and physical education curriculum common patterns 3. In connection with the integration of information technology and physical education teaching

Table 2: Normal practical teaching of modern technology of education and sport structures

Practice module	Skills modules	Learning objectives
Module 1: Networking panel discussion and reporting	<ol style="list-style-type: none"> 1. Search for information 2. Information processing capacity 	<ol style="list-style-type: none"> 1. In recognition of teachers' educational technology capacity requirements 2. Grasp the meaning of information literacy and content
Module 2: Modern teaching media of common equipment use	<ol style="list-style-type: none"> 1. Image acquisition 2. Audio capture 3. Video capture 	<ol style="list-style-type: none"> Master images, audio and video capture (or photographic, video and audio capture method)
Module 3: Micro-teaching in physical education and training	<ol style="list-style-type: none"> Medium capacity 	<ol style="list-style-type: none"> 1. Learn common sports teaching skills 2. Society of using the knowledge and skills taught
Module 4: Sports multimedia CAI courseware	<ol style="list-style-type: none"> 1. GIF and simple Flash animation 2. PPT Authorware tools using method 	<ol style="list-style-type: none"> 1. Learn to GIF animation and simple Flash animation 2. Learn to use PPT and Authorware production of CAI multimedia courseware

shows, a modern technology diversified curriculum of physical education teachers class teaching evaluation system).

CONCLUSION

Artificial intelligence is a highly comprehensive performance potential unit technology, it has a wide range of applications and in the technology of modern physical education, in the face of all kinds of multimedia, computer networks and information technology, our PE teacher, does not do sufficient preparation, for the development of information technology education, teaching model and teaching method of major table does not have a clear

theoretical and ideological recognition. Therefore, this requires enhancing the training of physical education, technical training courses of various forms of physical education, sports workers full access to information technology, so as to make direct use of these technologies, so as to serve the teaching and learning activities.

REFERENCES

Behera, A. and S.C. Mishra, 2012. Prediction and analysis of deposition efficiency of plasma spray coating using artificial intelligence method. *Open J. Compos. Mater.*, 2: 54-60.

- Blanquet, P.R., 2011. Advances in interdisciplinary researches to construct a theory of consciousness. *J. Behav. Brain Sci.*, 1: 242-261.
- Burget, R., V. Uher and J. Masek, 2012. Biology inspired image segmentation using methods of artificial intelligence. *J. Software Engine. Appli.*, 5: 172-174.
- Elhachimi, J. and Z. Guenoun, 2011. Distributed frequency assignment using hierarchical cooperative multi-agent system. *Int. J. Commun. Network Syst. Sci.*, 4: 727-734.
- Jin, Y., R. Wang, H. Huang and L. Sun, 2010. Agent-oriented architecture for ubiquitous computing in smart hyperspace. *Wire. Sensor Network*, 2: 74-84.
- Mehr, M.G. and H. Shirazi, 2012. An expert system for advising to buy a footballplayer using visual prolog. *Intell. Inform. Manage.*, 4: 134-137.
- Nasri, A. and B. Gasbaoui, 2012. Artificial intelligence application's for 4WD electric vehicle control system. *Intelli. Contr. Autom.*, 3: 243-250.
- Pignolo, L. and V. Lagani, 2011. Prediction of outcome in the vegetative state by machine learning algorithms: A model for clinicians? *J. Software Eng. Appl.*, 4: 388-390.
- Rastovic, D., 2012. Simulation and control of turbulence at tokamaks with artificial intelligence methods. *J. Mode. Phys.*, 3: 1858-1869.
- Tang, L. and J. Wu, 2012. Research and analysis on cognitive radio network security. *Wire. Sensor Network*, 4: 120-126.
- Thakare, V.V. and P. Singhal, 2011. Artificial intelligence in the estimation of patch dimensions of rectangular microstrip antennas. *Circu. Syst.*, 2: 330-337.