Research on the Application of Information Technology in Physical Education and Training

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Abstract: Information technology plays an important role in physical education and training, which can effectively promote the improvement of students' sports ability. The application of information technology has made outstanding contributions to improving the quality of physical education and training in colleges and universities and promoting students' mastery of sports skills. Information technology is applied more and more widely in the diagnosis and technical analysis of sports training technology, and its position is becoming more and more important, because information technology makes the diagnosis and analysis of sports technology more accurate, and is more conducive to improving the performance of sports training. Information technology plays a guiding and safeguarding role in the process of physical education teaching and training. The extensive application of information technology makes the effect of physical education teaching and training more standardized and effective. This paper analyzes the application of computer technology in physical education and training, expounds the influence of computer information technology on physical education and training from different angles, and puts forward effective countermeasures.

1. Introduction

The progress of science and technology has made important achievements in the application of information technology in the field of education and has been widely used in education of various disciplines. Information technology is changing our way of production, life, work and study more and more profoundly. The pace of educational modernization is getting faster and faster. Contemporary information technology has entered the school gate and the classroom. The application of information technology in the diagnosis and technical analysis of sports training technology is more and more extensive, and its position is more and more important, because information technology makes the diagnosis and analysis of sports technology more accurate, and is more conducive to improving the performance of sports training [1]. Physical education includes not only technical education but also theoretical education, which requires colleges and universities to pay attention not only to the cultivation and instillation of students' theoretical knowledge, but also to the upgrading of curriculum practice [2]. For sports, the teaching and training process is a very complicated and rapid movement process. Physical education is a multi-disciplinary subject that integrates knowledge transmission, skill training and physical exercise. Information technology is an indispensable and necessary tool for physical education and training [3]. In order to meet the training needs of sports talents, it is important to apply information technology in physical education training.

With the continuous development of modern technology with computers and networks as the core, human beings have quietly entered the information age. Physical education is the main theme of physical education in schools and an important part of cultivating qualified personnel for all-round development. The network-based education model plays a very important teaching aid role in physical education. In the traditional college sports training, the improvement of students 'sports skills mainly depends on the teachers and students' own experience. In the context of the development of information technology, people's lifestyles, production methods, learning methods, and work methods have also undergone tremendous changes. Information technology has penetrated into the corners of modern people's lives [4]. Physical education is a comprehensive discipline that integrates physical exercise, skill development, and knowledge transfer. Information

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technology is one of the essential tools in its education and training process [5]. The physical education teaching and training and computer information technology are combined and applied, and the two are perfected through practice, so that the effect of physical education training becomes more standardized and effective [6]. This article analyzes the application of computer technology in physical education and training, elaborates the impact of computer information technology on physical education and training from different perspectives, and proposes effective countermeasures to promote computer information technology to better serve today's Physical education training.

2. The Role of Information Technology in Physical Education and Training

2.1. Optimizing Physical Education Teaching Management

Sports training is a long-term process, and the first job in this process is to strengthen the management of all kinds of personnel. Information technology in physical training teaching, combined with the application of advanced modern technology, can effectively stimulate students' interest in learning and promote the improvement of comprehensive ability of physical training. In sports training, the organic combination of information technology and practical teaching can help students enter the state of sports training faster and complete the objectives of sports training [7]. In sports training, the application of information technology to establish visual and kinesthetic imagery plays an important role in students' actual feeling of sports details and is conducive to the improvement of students' sports skills. If students cannot learn skills effectively during physical education classes, they cannot establish sports habits. Students may lose interest in sports and do not want to develop lifelong physical fitness. At the university stage, students' independence and autonomy are more demanding, but students at this stage are often affected by factors with less social experience [8]. If modern information technology can be integrated, it will help to improve the efficiency of physical education management. Through modern network technology, the development and management of physical education teaching system can be optimized to a great extent to ensure the accuracy and consistency of teaching work.

2.2. Improving Scientific Nature of Physical Training

To realize the scientific nature of physical education and training, we must have sufficient data analysis results and scientific training methods as the basis, and the application of information technology provides a broad and rigorous scientific basis for physical education and training. If physical education teachers in colleges and universities can personalize their physical education classes based on their own specialty and students' reality and rely on their own practical teaching experience, they will certainly form their own personalized classroom teaching style that students like. The current college education has a big defect is the lack of humanization, many educational methods and educational ideas ignore the unique personality of students and the differences between students [9]. Sports test item management refers to the management of information related to sports test items. Its functional modules mainly include the addition of sports test items, modification and deletion of sports test items, weight setting, etc. The database tables involved in the implementation mainly include test item information tables. Here, only a detailed implementation description will be given for the addition of test items. The implementation process is shown in Figure 1.

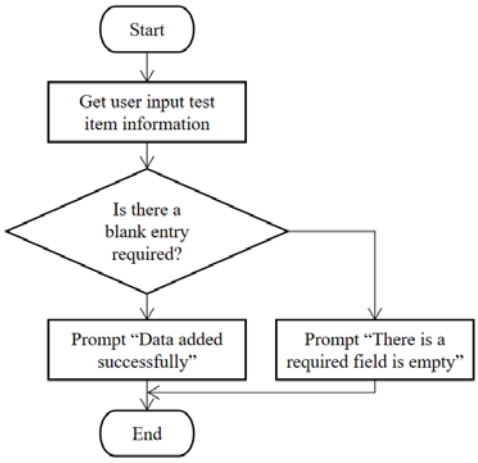

Figure 1 Program flow of new test items

At present, the education modes commonly used in higher education are unified and standardized. Students expect to be satisfied with sports skills and lifelong physical fitness in physical education classes. The application of information technology enables the achievements made by colleges and universities in physical education teaching to be displayed more comprehensively and systematically, which is of great benefit to colleges and universities in dealing with physical training information and releasing physical training results in a timely manner. Through computer animation design and simulation technology, the defects and deficiencies of athletes' movements can be effectively diagnosed, and then targeted guidance and training can be carried out.

2.3. To Improve Students' Sports Skills

Modern information technology not only effectively makes up for the shortage of teachers in many sports colleges, but also makes the methods and means of sports training more novel and diversified. Motion technology analysis needs to capture the motion trajectory first. Usually sensors are arranged at the key points of the motion to be measured to record the motion trajectory and motion changes, and then relevant data are analyzed and processed by a computer system to establish a three-dimensional model of motion technology analysis. Under the effect of information technology, students' psychology of seeking new things is satisfied. Modern teaching methods and emotional experience greatly stimulate their enthusiasm and enthusiasm for learning. According to authoritative statistics from education experts. An important way to effectively improve physical training is to accurately grasp and seriously analyze the essentials of movement so as to achieve accurate diagnosis of sports technology. Information technology is applied to dynamically record the process of students' sports training in teaching, and after technical treatment, slow motion analysis is carried out to make a more accurate positioning analysis of the sports training items. The application of information technology in physical education teaching and training will continuously improve physical education teaching content and teaching and training methods, that is, adopting student-centered teaching and training methods will help to improve students' comprehensive quality.

3. Application of Information Technology in Physical Education and Training

Nowadays, the advantages of modern information technology in teaching and training in major physical education colleges are increasingly obvious. The effect of advanced information technology on stimulating students' interest in learning and improving the comprehensive level of teaching and training is beyond doubt. Information technology can effectively combine various teaching information such as words, images, sounds, animations and the like together without being limited by time and space, and directly convey the information to the sensory organs of the educated, thus realizing efficient transmission of educational information in physical training. If

modern information technology can be applied to teaching and training, the training actions can be decomposed and visually strengthened through video and audio playing, such as slow motion playback, pause, etc., so as to enable students to perceive the essentials of actions more comprehensively and focus on the difficult points of actions [10]. The more advanced information technology at the present stage is the combination of electronic sensing technology and high-speed video camera, which makes an all-round and multi-angle analysis and diagnosis of the sports technology, and accurately calculates the movement form and speed at any time, which is helpful for students to improve their own sports effect in training.

Mastering sports skills is of course a necessary condition for students majoring in physical education, but under such conditions, only students majoring in physical education can be trained but not talents. This is one of the main problems in the training of physical education professionals in colleges and universities in China. Most PE teachers and students support the introduction of information technology into PE teaching, as shown in Table 1.

Table 1 Survey of whether it is necessary to introduce information technology in physical education

Choice item	Number of students	Percentage (%)	Number of teachers	Percentage (%)
Very necessary	22	8.8	11	22
Be necessary	147	58.8	30	60
commonly	65	26	6	12
Unnecessary	16	6.4	3	6

Information technology not only plays a vital role in the transmission of sports skills and the guidance of training actions, but also the diagnosis and analysis results of sports technology based on information technology are much more accurate than those of traditional sports technology. The application of information technology in physical education and training can attract students' interest in learning, stimulate students' subjective awareness of sports training, and effectively improve classroom teaching efficiency [11]. The application of information technology in physical education teaching and training will continuously improve the content and methods of physical education teaching and training and help to improve the comprehensive quality of students. The development of information technology has provided basic support for the development of sports. The research on multidisciplinary theories such as training, psychology, biomechanics and nutrition has promoted the mutual promotion between the improvement of teaching and training results and the development of information technology.

4. Conclusions

With the popularization of information technology, in the daily teaching activities of colleges and universities, the traditional classroom teaching mode alone can no longer meet the requirements of both teachers' teaching and students' learning, especially there are great differences in the learning ability, learning foundation and efforts of different students in reality. Applying modern information technology to physical education and training is an effective way to promote the reform of physical education in colleges and universities and to innovate the mechanism of physical education and training. In the modern sports arena with information development, the application prospect of computer technology in the sports field is very broad. The traditional classroom teaching mode ignores the personalized characteristics of the learning process, so the reform of the teaching mode is imperative. Through the sports decision support system, using advanced algorithm for analysis and judgment, providing perfect data report can make coaches and managers make scientific decisions in the shortest time. Educational institutions and school leaders should face up to the advantages and functions of sports network teaching, strengthen the information policy publicity and education, and increase the efforts to popularize multimedia network teaching. Educators must seize the opportunity and face the challenge bravely, apply modern computer information technology to physical education and training, and further promote the reform of physical education and training innovation.

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