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Theory and Practice of Physical Education and Sports Training in Colleges and Universities Based on Information Technology

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***Abstract*—At present, the professional training of sports in our country still follows the teaching concept of coach standard, especially in the practical experience course activities, the classroom setting of sports training major still focuses on whether the students meet the predetermined requirements. To some extent, it ignores the psychological health requirements of students, violates the teaching principle of "health first", and is not conducive to the cultivation of students' psychological quality. Based on the above background, the purpose of this study is to explore the theory and practice of physical education and sports training in Colleges and Universities Based on information technology. In this study, firstly, it is necessary to build a reliable safety network information system, and then analyze the theoretical and practical constraints of physical education and sports training in Colleges and universities, Let our college students have a significant improvement in physical literacy. The experimental results show that physical education in Colleges and universities only accounts for 10% of the courses in Colleges and universities. Therefore, we should establish the concept of coordinated development, build a strong teaching staff, reform teaching methods, contents and evaluation indicators, optimize teaching methods, scientifically design and reasonably carry out physical education, and promote the coordinated development of the two.**

Keywords—information technology, physical education, sports training theory, colleges and universities

I. Introduction

At present, in all kinds of teaching activities in Colleges and universities, the trend of intellectual education over physical education is becoming more and more intense, and moral education is also weakened in the process of teaching in Colleges and universities. Therefore, physical education classroom teaching is in urgent need of reform. Through building a new model and system of efficient classroom reform, the teaching concept of general education can be realized. From the current sports teaching practice, good sports teaching courses and training courses are related to the training quality of talents and the promotion of professional sports training skills, which have a positive impact on the psychological health education and career planning of college students.

College physical education is an important part of college teaching, which plays an increasingly important role in college students' study and life [1-2]. It is more and more difficult to meet the strong demand of students for physical education curriculum in the conventional physical education teaching mode. The reasonable use of sports training in physical education teaching can not only improve the efficiency of physical education teaching, but also promote the innovation of current physical education teaching mode [3]. Training practice is the standard to test training theory, the object to serve and guide training theory, and the important factor to promote the development of training theory. It fundamentally determines the development of training theory [4-5]. The promotion of training practice to the development of training theory is based on the discussion and debate of different training theory views. Training practice is the external cause, while the discussion of different training theory views is the internal cause, which together promote the development of training theory [6-7]. It is impossible to construct training theory once, but it should be infinite times. Because of the relativity of human cognition, it is impossible to complete training theory once [8-9]. The correct grasp of training theory depends on the complementary function of two or more opposite viewpoints. Therefore, the discussion and debate of different viewpoints are the internal requirements of theoretical development, the vitality of scientific progress and the only way to develop training theory [10].

Based on this, this paper analyzes and discusses the development and practice of the training in the college physical education with information technology, hoping to promote the effective development of the college physical education.

II. Method

A. Principle of Sports Function Training

1) Multi plane

Human functional system is the perfect combination of complex systems, which are interrelated and cross mixed. The structure determines the function. Generally speaking, there are planes in the movement of human functional system, namely, the sagittal plane, the frontal plane and the horizontal plane. The human body's activities are carried out on individual planes or dimensions in turn. The sagittal plane involves forward and backward movements. Because the daily walking and running activities involve more sagittal activities, it is also called the basic plane. The frontal plane is related to lateral motion, and the horizontal plane is related to rotational motion. These planes are often used as reference factors by coaches to organize training activities.

From the perspective of sports training, horizontal exercise is the most important but also the most difficult to analyze, because people generally think that rotation is a relatively dangerous activity. Many sports injuries occur in

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horizontal rotation, such as Achilles tendon sprain, kicking joint sprain, knee joint, shoulder joint injury, etc., which may be caused by ignoring horizontal exercise, It may also be the result of some wrong form of action. This is the reason why foreign coaches have always stressed the importance of core area training, because many parts of the sports happen on the level.

2) Multiple joints

The basic movements of all events include walking, running, jumping, pushing, throwing, catching, pulling, lifting, etc. they are all carried out in the moving surface, and all movements are inseparable from the response and promotion of the integrated neuromuscular osteotomy system. For example, the process of walking forward obviously involves the movement of the sagittal plane, but in fact, it is also controlled by the movement of the frontal plane and the effective horizontal plane. Successful standing and balance requires the neuromuscular osteotomy system to realize the function of response chain on three moving surfaces.

B. Intelligent Decision Model

In the classical decision model, combined with the constraints of system resources, the classical decision tree model can avoid the constraints of high computational complexity as much as possible, and make effective analysis and decision on the scale data sources of numerical and nominal attributes in a short time under the condition of simple preparation or even unnecessary preparation, At the same time, the output of the model is easy to understand. It is these characteristics and advantages that make the decision tree model become the core of the intelligent decision model design of the supervision platform.

As for the decision tree algorithm, as a common supervised learning algorithm, the core idea is to construct the decision tree with the basic ID3 algorithm. In this algorithm, the concepts of entropy and information gain are introduced first, and the calculation model of entropy value is as follows:

$$H = -\sum_{i=1}^{n} p(x_i)\log_2 p(x_i) \quad (1)$$

In the formula, H represents the entropy value, Xi is the probability of a single event. The larger the entropy value is, the more complex the information is. In addition, the entropy calculated according to the overall occurrence probability of each event is the total entropy, and the entropy calculated according to various classification processes is the process entropy, and the difference between the two is the information gain. Different classification schemes have different information gain, and the information gain is larger, which means the scheme has stronger ability to distinguish samples, and the results are more representative, so the more efficient classification scheme can be selected accordingly.

III. Experiment

A. Construct School-based Curriculum System to Release Vitality

The requirements of physical education curriculum construction are mainly from the aspects of guidance, planning, construction, etc., which are the key driving forces of physical education curriculum, so that the leaders of colleges and universities at all levels can separate from the complex affairs and restore education itself. The competent department of education should also actively organize the research work of physical education teaching materials in Colleges and universities, so that schools can think about and plan physical education courses. The sports training specialty should meet the requirements of school-based characteristics. On this basis, to cultivate college students' Sports literacy, we should not only pay attention to students' evaluation, but also pay attention to curriculum evaluation, abandon the traditional form of paying attention to the classroom and ignoring the curriculum in the past, and build a more characteristic operation training professional curriculum system, so as to build a complete and distinctive school sports training professional system.

B. Innovation of Sports Training Courses and Improvement of Teaching Quality

Through the innovation of sports training courses in Colleges and universities, the teaching quality of sports courses can be developed by leaps and bounds. Our country's physical education should take the characteristic development road, the starting point is to cultivate students' interest in sports, and strive to make students form the habit of lifelong physical exercise. Physical education is not a subject set up for examination. The key of physical education activities is to promote students' exercise ability, make students cultivate their own physical exercise ability through physical education, and form a good habit of loving physical education and constantly strengthening physical exercise. We should continue to deepen the reform of physical education, give full play to the leading role of the school's physical education training courses, and constantly promote physical health education in the major of physical education, so that students can master sports skills in an all-round way, and pay more attention to the cultivation of sound personality. The opening of sports events is on the one hand physical construction, on the other hand psychological construction. Sports is a group activity, such as basketball, football and other projects need team cooperation. Therefore, in order to get a place in the competition, it is necessary to cooperate with each other among players, which is very helpful to improve students' interpersonal communication ability.

IV. Discuss

A. Development of Physical Education and Sports Training in Colleges and Universities

This study makes a simple division from three aspects of human body structure, training purpose and sports events (as shown in Table I). The table lists the functional training methods for developing different abilities of different parts according to the human body, which does not mean that the training of upper limb strength is just the training of upper limb, other parts also need to cooperate, but there are primary and secondary points. In specific projects, first of all, we should make clear the goal: what kind of ability the athletes need to develop. Many events require more than a single athletic ability, so the training will be scored successively.

TABLE I. DIVISION OF FUNCTIONAL TRAINING METHODS IN DIFFERENT PARTS

Basis	Main structure of human body		
	Core area	***Upper limb and shoulder joint***	***Lower limbs and buttocks***
Functional training	Power select speed smoothly	Steady speed of power	Steady power, quick and flexible
Fitness group	Physical ability leading skill leading	Fast power, accuracy	Fast strength, accuracy, endurance

In all sports, the force and work are transmitted through the trunk, and the trunk muscles (including the trunk muscles and hip muscles) are particularly important for the balance and stability of the human body. The core muscle group includes trunk and pelvis muscles, whose main function is to maintain the stability of spine and pelvis. Some surface muscles in the core area, such as rectus abdominis and rectus externus in front of the trunk and erector spinalis in back of the trunk, play an important role in maintaining body posture and balance (especially dynamic balance). However, the deep muscles on the trunk are more important, such as the internal oblique and transverse abdominal muscles, which can maintain the stability of the trunk and improve the body's ability to change posture. The stable muscles on the deep spine, such as quadratus psoas and latissimus dorsi, play a decisive role in maintaining the stability of the spine. The functional training of core area should run through the whole training cycle.

B. Practical Analysis of Physical Education Courses and Sports Training in Colleges and Universities

In the process of traditional physical education in Colleges and universities, the focus of teachers' teaching is mostly on "teaching". In many cases, the enthusiasm and learning of students' knowledge and skills are directly ignored in classroom teaching, which makes a considerable part of students like physical education but tired of going to physical education. Therefore, in the process of physical education in Colleges and universities, Teachers should optimize and improve teaching means and methods at any time to fully attract the attention of students and keep them fresh in college physical education teaching. In this study, the investigation of sports equipment and students' Sports in a university is shown in Figure 1 and Figure 2.

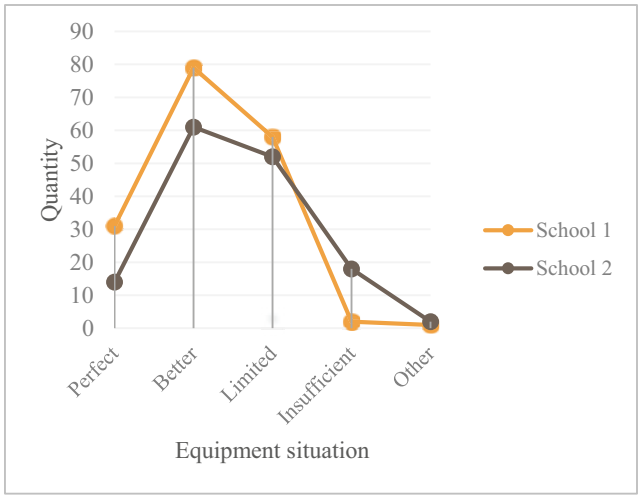

Fig.1. Survey diagram of college equipment improvement

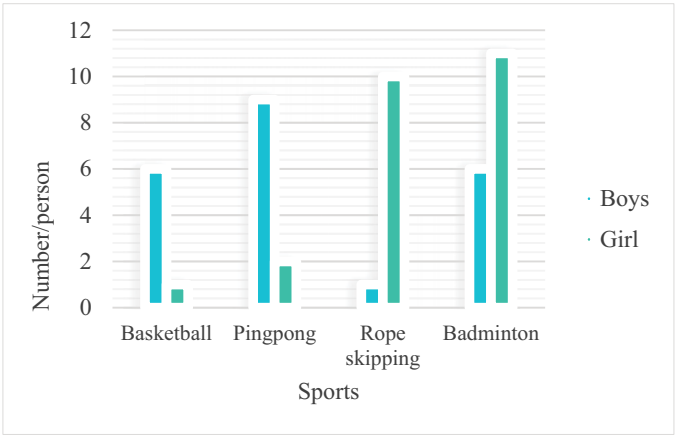

Fig.2. Statistics of the survey of college students' inter-curricular activities

It can be seen from the figure that we should pay attention to the cultivation of students' interest in sports teaching, because interest is the best teacher, supported by interest in sports, and students themselves will continue to

work hard, so that teachers will save more teaching time and achieve the ultimate goal of physical education teaching. First of all, in the practice of physical education, teachers must emphasize the combination of point and surface. According to the survey, one of the reasons why some students are tired of physical education is the lack of interest in the classroom, so students' interest can not be improved. As time goes on, students are tired of physical education courses. Therefore, in the process of teaching, teachers must appropriately increase the interest of teaching, so that the classroom becomes relaxed and happy, which is easy for students to accept, and can effectively stimulate students' interest in learning.

V. Conclusion

In the whole physical education teaching, the teaching with theory is far from enough. In order to improve the level of students, we must add the actual physical activities on the basis of theoretical knowledge. It is not only the demand of learning, but also the key measure of cultivating students' physical literacy to open the course of sports training in Colleges and universities. It is also necessary to practice the theory of physical education and sports training in Colleges and Universities Based on information technology. Therefore, in teaching, teachers should change the form of professional courses and the driving factors of running training, so as to improve the special physical education courses and enhance the students' understanding of practical knowledge, so as to optimize the course training and curriculum reform, and then explore the new mode of physical education curriculum reform.

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Research on the application of "small group cooperation" teaching method in the elective course of physical education in Higher Vocational Education.

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