

# Research on the Disciplinary Nature and Curriculum Optimization of Physical Education and Training

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**Abstract.** Physical education and training, a discipline to study the system of basic theory and method of physical education and sports training, is the subordinate discipline of the first-level discipline sports science, which investigates the law of physical education and sports training based on modern education and teaching theory and sports human science theory. In this paper, based on the author's learning and practical experience, we first discussed the disciplinary nature of the physical education and training, and then put forward the strategies of the curriculum optimization of the physical education and training. The research results of this paper have certain positive significance for further mastering the disciplinary nature of the physical education and training, and can provide some references for optimizing the curriculum arrangement of this discipline.

## 1 Introduction

With the continuous development of higher physical education, a scene of prosperity has appeared in physical education. Meanwhile, the physical education is also faced with new challenges and transition: change from the development of quantity to the improvement of the quality, from the closed mode to the open mode, and from the cultivation of knowledge-based talents for scientific research to the cultivation of practical talents for scientific research and innovation. Therefore, the further optimization and standardization of the training process are urgent needs to solve the problems of physical education. With the increasing scale of university enrollment, some substantive problems has exposed in the cultivation of students in physical education and training, and the problem of cultivation quality has become one of the social hot spots.

## 2 Analysis on the Disciplinary Nature of Physical Education and Training

In 1997, the physical education is divided into physical education and training, sports human science, sports humanistic sociology and ethnic traditional sports science in "discipline and professional directory". Although the four subordinate disciplines are coordinate. However, from the characteristics of research object, research content and discipline property, they still have the difference in nature and level.

In the four subordinate disciplines, sports humanistic sociology, aimed at proposing the suggestions related to sports decision-making and playing an important role in establishing and improving sports policies, regulations and systems in China, is the application of research methods of humanistic sociology to study the social phenomenon of physical education. Sports human science is the infiltration and development of physiology, anatomy, biomechanics and medicine in sports field, which obviously have the nature and characteristics of their respective

parent disciplines. Ethnic traditional sports science is a subject group of research on the theory and method system of the traditional sports of the Chinese nation, which takes the martial arts, qigong, health-preserving and other traditional folk sports as the research object, and uses scientific methods to excavate, organize, innovate and carry itself forward. In addition to physical education and training, the other three subordinate disciplines, are either the penetration and in-depth of other mature disciplines in sports science, or the use of other disciplines theory and methods to study problems in sports practice, who are not proprietary and independent original disciplines in sports science.

The investigation of the disciplinary nature and characteristics of the physical education and training are mainly from the following three problems. First, does physical education and training belong to natural science or social science? Second, is it basic research or applied research? Third, what level does it belong to in the scientific system?

First, in "discipline professional directory" issued in 1997, the physical education and training is a discipline which investigates the basic theory and method of physical education teaching and sports training. It is a new discipline of the combination of theory and method of physical education teaching and sports training, which occurred in 1997 in the process of their development for many years. Its discipline research scope is the theory and method of physical education teaching and sports training. Since it is the theory and method of teaching and training, physical education and training is closer to the attributes of pedagogy. However, this understanding is one-sided, because the physical education and training is different from the teaching theory and pedagogy, which studies not only the theory and method of teaching and training, but also the technical and tactical development problems of various sports items in the teaching contents. The study of tactical problems belongs to the field of natural science. Therefore, physical education and training is a comprehensive discipline.

Second, the concepts of basic discipline and applied discipline have been extremely clear. According to the provisions of UNESCO, human science and technology research and development activities can be divided into three categories, namely basic research, applied research and experimental development. Physical education and training applies the theoretical achievements of sports human science and sports aesthetics regarding the relationship between the sports and human being to the practice of physical education teaching and sports training, which has the characteristics of applied research. Meanwhile, physical education and training is also a discipline with specific direction and purpose. Therefore, it is undoubtedly a highly applied discipline. However, it cannot be denied that physical education and training also considers the revelation of the general laws and basic principles of physical education teaching and sports training as their own research object. For example, the development and innovation of cycle theory and plate theory in sports training is a basic research.

Third, as mentioned above, the physical education and training considers sports technology of different sports and their laws of teaching and training as discipline research content, which belongs to the technical discipline category, and belongs to the fourth level in the longitudinal structure of the scientific system proposed by Qian Xuesen, namely engineering technology.

### **3 Curriculum Optimization of Physical Education and Training**

#### **3.1 Create the external interdisciplinary atmosphere**

The virtuous atmosphere is conducive to the organization of scientific research personnel in different disciplines to communicate frequently, form the brainstorming, refine the key scientific issues, and thus make the academic atmosphere stronger. However, the obstacles could be caused by the professional barriers to the crossing among the disciplines, which is not conducive to the development of disciplines. In the cultivation of interdisciplinary talents, we

must abide by the law of scientific development, and break through the professional limitations to meet the needs of discipline development. Therefore, it becomes particularly critical to strengthen the ties with the parent discipline and pay attention to the construction of basic disciplines. Physical education and training is a comprehensive curriculum with strong professional and theoretical property, whose ties with the parent disciplines are very close. In terms of the school students, strengthening the basic theoretical knowledge learning can effectively reduce the difficulty of learning physical. For the cultivation object of physical education and training, namely the students, the higher knowledge level of the parent disciplines, the stronger its professional skills will become.

### **3.2 Conduct the internal interdisciplinary reform**

In the new era, the experts pointed out that the concepts of academic freedom should run through the teaching and research activities of the universities, which consider the nature of education as the basis, and study the teaching contents via the forward-looking vision. That is to say, they believed that the college teaching and research activities must rely on the nature of education, and conduct the research based on the standardization of education and teaching rules, the clearness of the personnel training objectives, the innovation of the disciplinary construction, the scientization of the curriculum establishment, the enrichment of the teaching content and the diversification of teaching forms and means. Under this concept and taking the subject as orientation, the subject-based, research-oriented and academic leaders-centered new teaching and research team can be initially established in accordance with the criteria of hierarchical management, core down-shift, equal rights and responsibility and resource functions symmetry.

Integration of teaching-research office based on the curriculum and subject arrangement, and the establishment of institutes with the premise of subordinate disciplines can make the core shifted down to the bottom. In this way, the speed of information transmission is accelerated, which makes the relationship between the decision maker and performer closer, and the information resources effectively shared. The investigation results show that a part of the physical education schools have conducted the integration of the separate institutes, and their representative is the establishment of the small teaching and research office. The establishment of the comprehensive research center according to the group events theory is conducive to comprehensive research on the crossing within the physical education disciplines. The construction of the entity organization objectively provides not only a stable external environment for the crossing and infiltration of the physical education disciplines with other disciplines, but also a suitable medium for the optimal allocation of the scientific research personnel.

### **3.3 Construct the compound talents cultivation mode**

The demand of modern society for professional talents changes due to the economic and social development, that is, the compound talents are the most "rare" human resources. The society has put forward more stringent requirements on the comprehensive development mode of the disciplines. (1) The universities should reform the educational system, and adopt different methods to strengthen the cross-integration and mutual penetration of arts and science, which will make them be an indivisible whole. (2) The universities should improve the teaching system of intersectional and comprehensive disciplines, expand the students' vision, and deepen the depth of professional knowledge, so that the students can apply their knowledge and meet the requirements of the society. (3) The universities should enhance the flexibility of the curriculum system, and reform the curriculum system through comprehensive measures with strong operability to meet the needs of the society, so that the professional education and market needs are closely linked. Therefore, the physical education and training profession

should be the same as the national traditional sports teaching subjects, which cultivate talents via the establishment of the sports project system. The sports human body profession and sports human body sociology profession should integrate the subjects and knowledge to cultivate the compound talents who meet the social needs.

### **3.4 Perform coordination and innovation on the disciplinary system structure**

In order to get a good development momentum of the pedagogy of physical education discipline, we must establish and improve the disciplinary system, democratic disciplinary management system and disciplinary standard. It is undoubted that the organizational role of the professors, experts and expert committees should not be overlooked. Under the background of the new era, China's sports education and training disciplines still have great progress and innovative space. Because the impact of the traditional planned economy is far-reaching, the talents of China's physical education and training disciplines are subjected to many factors, so that our long-term strategy of discipline construction cannot be achieved, and the disciplinary innovation ability has been severely suppressed. This kind of disciplinary mode makes our institutions of sports training discipline lose the balance, which is not conducive to the disciplinary crossing. This kind of system and external environment have extremely bad effects on the progress and development of the discipline.

## **4 Summary**

A large number of complex and comprehensive problems continuously emerge in the practice of modern physical education and training, which urgently need the multi-disciplinary crossing joint research. Because of the closed disciplinary structure and monotonous research methods of the traditional sports training, it is urgent that physical education and training can keep up with the pace of the development of times, and cultivate complex talents at different levels who can adapt to a wide range of social needs by optimizing the disciplinary structure. The optimization of the disciplinary structure of the physical education and training not only is in line with the actual needs of the strategic integration of physical education, but also meets the objective requirements of improving the teaching efficiency of physical education and training in China.

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