Empirical Research on Sports Education Model in Aerobics Teaching in Colleges and Universities

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Abstract: The application of sports education model in aerobics teaching is the product of the exploration of physical education reform in colleges and universities, which is based on summarizing the experience of physical education curriculum construction and teaching reform. This paper uses literature analysis, questionnaire surveys, expert interviews and other research methods. Based on the theory of "sports education model", it designs, implements and evaluates the aerobics course in colleges and universities, and discusses the necessity and feasibility of this model in aerobics teaching. This paper aims to open a new path for the reform of aerobics education.

1. Preface

The traditional physical education teaching model that has been followed by China is based on the education theory of Kairov and the classical conditional reflection theory of Pavlov, and is deeply influenced by the teaching theory of Soviet Union's physical education. It has long been used in China to realize the "three bases" (basic knowledge, basic technology and basic skills) of sports. Under the new situation, many scholars have criticized the one-sidedness of this teaching model. They believe that the teaching structure is only based on technology and lacks the complete concept of sports, neglect students' main position in teaching and the cultivation of their interest in sports. Besides, they also hold that this model lacks the idea of lifelong physical education for students, and does not pay attention to the cultivation of their cognitive ability and social skills, etc. Thus, it is imperative to reform the traditional physical education teaching model.

In recent years, Sports Education Model (SEM), which is advocated by the western school sports circles, is guided by game theory, social role theory, symbolic interaction theory, etc. This model takes "full participation" and "everyone's success" as the concept, takes teachers' direct guidance, students' cooperative learning as the teaching system, and fixed grouping and role play as the organizational form. It takes competition as the main line in the whole teaching process, and provides students of different sports levels with real and rich sports experience. This not only enables students to obtain complete sports knowledge in cognitive, emotional, technical and social aspects, but also enables them to gain experience of communication, coordination, organization and management in sports teams. Considering the above features of sports education model, this paper aims to build a teaching model that takes aerobics as the carrier, sports competition as the main line, ordinary college students as the objects, and comprehensively improve students' sports ability.

2. The Theoretical Basis of Sports Education Model

Sports education model is a curriculum model developed based on game theory. It emphasizes the fun and playfulness of sports and holds that sports is a complex form of game. Students' participation in sports promotes the development of individual social behavior and the continuous maturity of body and mind. Through the repeated practice of personal technical movements and the flexible use of team tactics in the competition, the spirit of the sportsman is cultivated.

2.1 Basic Hypotheses

Siedentop (1987) defined four hypotheses based on the game theory, and used them as the selection and reference in the implementation of sports education model.

(1) Sports is a form of high-level game. Sports must maintain the characteristics of the game, such as the voluntary participation, rules and restrictions of time and space.

(2) Sport is an important part of culture. Whether an individual is engaged in school sports, social sports or competitive sports, these are important indicators of a healthy culture.

(3) We need to scientifically learn sports. Since sports is an important part of culture, students should learn sports skills as they do in cultural courses. Physical education curriculum should include the mastery of sports skills and the rational use of tactics. Meanwhile, students should also learn sports knowledge and etiquette, such as respecting referees, organizing competitions, and learning simple rules.

(4) We need to correct the sports properly. For the purpose of everyone's participation, according to students' abilities, we should appropriately correct rules and venue sizes of sports, etc. and increase their successful experience during the practice.

2.2 Curriculum Objectives

Curriculum objective is the basis of curriculum value orientation, which is closely related to social culture, subject content and individual development. It is also a description of the learning results of the students' participation in the course. Moreover, through the presentation of learning results, curriculum objectives and teaching strategies can be appropriately revised to improve students' learning effect. The curriculum objectives of the sports education model are as follows (Siedentop, 1994) :

(1) Developing special sports skills and physical abilities;

(2) Training tactical consciousness and tactical decision-making abilities;

(3) According to students' own level, designing competitions and exercises, and improving their opportunities to participate in activities;

(4) Sharing sports experience and sports planning experience;

(5) Developing leadership and responsible attitudes;

(6) Devoting themselves to achieving the common goals of the group;

(7) Appreciating and feel the meaning and significance of the celebration ceremony;

(8) Cultivating students' decision-making ability;

(9) Cultivating students' ability to play various roles;

(10) Actively participating in extracurricular sports activities.

2.3 Development Goals

The development goals of sports education model for students mainly include psycho-social development goal, physical development goal and cognitive development goal.

(1) Psycho-social development goal

Through sports activities, students learn the spirit of teamwork and fair competition, and learn to make correct decisions in a reasonable competition. They understand the simple rules and etiquette of the competition in a happy learning atmosphere, and finally become a successful sports participant.

(2) Physical development goal

First of all, students are instructed to learn the basic movements, basic tactics, simple rules and sports spirit. Then, they are taught in groups or in competition seasons to improve their physical abilities and sports skills, so that students can feel the fun and challenges brought by sports activities.

(3) Cognitive development goal

In the teaching of sports education model, team members can discuss and decide which game tactics to use in order to effectively fight against opponents. Moreover, students can also understand

the spirit of sports competitions and their ways of organization by planning these competitions, and expand their horizons.

It can be seen from the overall, specific and development goals of the sports education model that this model not only emphasizes the development of students' sports skills. More importantly, it cultivates students into an all-round sports participant, improves their sports experience, enables them to know how to share with others, and then improves the sports level of the whole society to achieve the goal of national sports.

2.4 Features of Sports Education Model

Siedentop (1994) pointed out that the sports education model has six features, including sports season, team affiliation, formal competition, culminating, record keeping, and festivity, as shown in Fig. 1.

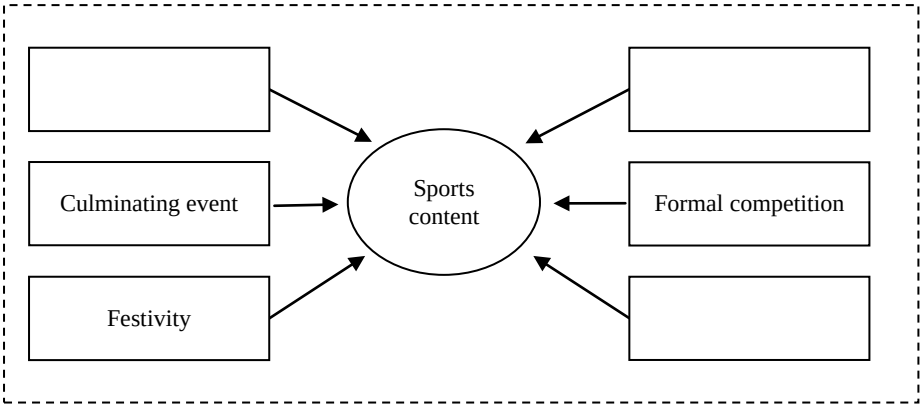

Fig. 1 Features of Sports Education Model

Source: Siedentop D. Sport Education: Quality PE Through Positive Sport Experience [M]. Champain, IL: Human Kinetics, 1994, 307.

3. The Construction of Sports Education Model of Aerobics Course in Colleges and universities

3.1 Research Objects and Methods

3.1.1 Research Objects

In this study, female students from six classes of 2017's ordinary undergraduates of Qilu University of Technology are selected as the research objects. According to the principle of randomness, about 140 students from three classes are randomly selected as the members of the experimental group, and the rest classes as the control group.

3.1.2 Research Process

Pretest is performed before the experiment. Test items include measurements of cognition, skills, emotions, physical fitness, and performance. After the teaching of 12 lessons (90 minutes per lesson), post-test and interviews are conducted. The items of post-test evaluation are the same as the pretest. The interviews are conducted in a semi-structured way, and then the evaluation and interview results of both the pretest and post-test are statistically analyzed.

3.1.3 Research Tools

The research tools used mainly include: (1) traditional teaching plan and SEM teaching plan of aerobics; (2) subjective and objective skill evaluation scales; (3) cognitive evaluation scale; (4) emotional evaluation scale; (5) social interaction scale.

3.2 Design of Teaching Plan

Based on the theory of sports education model, the implementation of aerobics is divided into three stages: learning stage of basic skills; group practice and pre-season stage; formal competition and celebration ceremony stage.

3.2.1 Design of Teaching Activities

(1) The establishment of teaching units and selection of teaching objects: aerobics special course, female freshmen;

(2) Form of sports season: 12 classes in total, 24 class hours in total, once a week;

(3) Grouping form: using heterogeneous grouping, 8 people in each group, and the team leader of each group is selected by the team members;

(4) Competition form: the pre-season competition and formal competition adopt the simplified conventional competition form;

(5) Equipment: gym, audio, scoring table, scoreboard, recording table and stopwatch;

(6) Students' roles: team leader, coach, referee, player, scorer, timekeeper;

(7) Performance evaluation: individual performance, team performance, basic technical level;

(8) auxiliary equipment and others: publicity posters, small prizes, places for holding small meetings.

3.2.2 Implementation of Teaching Activities

(1) The learning stage of basic skills

Under the guidance of teachers, students learn the basic postures, basic movements and complete sets of aerobics, and also learn the relevant competition rules and refereeing methods, as well as the organization and management of aerobics events. All students are divided into heterogeneous groups to determine team names, and role plays of team leaders and their members.

(2) Group practice and pre-season stage

Students continue to improve their aerobics skills in groups. In-group and inter-group competitions are used to improve the overall skills of individuals and groups, and to initially practice the aerobics competition rules and refereeing methods.

(3) Formal competition and celebration ceremony stage

Formal individual and team competitions are held in groups. Through the negotiation of teachers and students, the organization, scoring rules and refereeing arrangements of aerobics events are arranged. Then, the formal aerobics competitions are evaluated, summarized and recorded, so as to share learning experience, and hold celebration appropriately when permitting.

3.2.3 Evaluation of Teaching Effect

Teachers design teaching activities according to teaching objectives. To understand students' learning effect, teachers can conduct preliminary evaluation, formative evaluation and summative evaluation through multiple evaluation ways, so as to check their learning effect and modify teachers' teaching strategies and content.

Evaluation indexes of teaching effect include five parts: sports skill 20%, professional knowledge 30%, competition performance 30%, attendance 10% and sports spirit 10%. The total score of the semester focuses on the performance of students in competitions, such as the use of skills, tactical decision-making ability, organizational ability, executive ability and so on in competitions.

Table 1. Table of Teaching Effect Evaluation

Total score 100%				
Score of performance in competitions 80%			Attendance 10%	Sports spirit 10%
Skills 20%	Competition performance 30%	Professional knowledge 30%		

In conclusion, the evaluation scores of teaching effect can be divided into three parts: the specific performance of students participating in competition 80%, attendance 10%, and sports spirit 10%.

4. Conclusion and Suggestions

4.1 Conclusion

At present, the reform of physical education is changing rapidly. Physical education has gradually developed in the direction of interest in the teaching process, diversification of teaching content, effectiveness of teaching methods and systematization of teaching schedule. Apart from cultivating students into a healthy person, school sports should be integrated into students' daily life, so that they can consciously and spontaneously engage in physical exercise. Physical exercise is the medium to achieve the goal of physical education and the main content of physical education.

Traditional aerobics teaching emphasizes the learning of a single movement and a combination of techniques. Skills practice focuses on repeated operations of basic techniques, with few individual or group aerobics competitions. For most students, aerobics class is less fun, and the emotional communication between peers is limited, which can not make students of different levels have positive interaction in learning. Instead, sports education model not only emphasizes the learning of sports skills, but also attaches more importance to the social development of individuals. This study and relevant research results at home and abroad also show that the application of this model in aerobics not only improves students' learning effect of sports skills and opportunities for interaction between peers, but also improves their willingness and interest in aerobics learning.

4.2 Suggestions

It is necessary to strengthen the training of teachers in sports education model so that they can deeply master the theoretical essence and practical operation methods. When using this model for aerobics teaching for the first time, we should simplify the operating procedure. Rules setting, role playing and grouping should be easy for students to understand and operate. Ordinary colleges and universities can continuously use the sports education model for aerobics teaching in multiple semester and even the entire university.

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