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Research and Analysis of Ball Sports Learning in Inspiring and Aiding Students' Diversification Education

Rui Liu[1]

Abstract

With the development of university education, the number of students' enrolled in colleges is increasing; as a result, the scale of college students' training is also gradually expanding, exposing the contradiction between the quality and quantity of college students' training. With the development of the social economy, individuals tend to pay more attention to their health. Ball sports are viewed as a sport that combines entertainment, viewing, and fitness, which require a relatively lower level of equipment and personal skills. Adapting to the dynamic changes developing in society in this information age is in line with the modern educational concept. Its use in badminton teaching and learning is in line with the students' own developmental needs and stimulates the students' potential. While exercise promotes the development of students in many aspects, and lays down a solid foundation for students' learning and development. The educational value of class teaching is in secondary vocational schools. This paper puts forward a research-based analysis of ball sports in inspiring and aiding students' diversification education. It is necessary to coordinate the development quality of college students with the development of scale and quantity. In the process of teaching, we must break through the limitations of the traditional teaching mode and attach importance to the multi-teaching mode. Diversification education promotes the ability of students to innovate and the educational value of ball teaching in colleges and universities.

Keywords: Diversification Education, Ball sports, Students' learning, Inspiring and aiding, Multi-teaching mode

With the continuous development of the physical health and education curriculum, the author is able to constantly explore and study the profound connotation of curriculum reform, and bring about innovations in classroom teaching to meet the requirements of the new curriculum standards. Nowadays, the world economy and culture are showing diversified development trends, and the diversified knowledge theory system has increasingly been accepted by more people. Under the previous unified knowledge theory system, the talents cultivated are difficult to adapt to the requirements of diversified economic and cultural development (Mihaela & Iulian, 2015). Therefore, contemporary school education has adopted a diversified knowledge theory system to train students to adapt to the development of social and economic diversification. As an important part of school education, sports also bear similar responsibilities. Physical education class builds students' diverse knowledge, which is mainly reflected in physical education classroom teaching.

In the new curriculum reform, the models of the teaching content of the previous frameworks have changed. With the use of a multi-class form, teachers can choose one or several kinds of teaching content according to the actual situation of the school and where they are located, thus leaving more choices for physical education teachers (Cheng, Yang, Chang & Kuo, 2016). When choosing teaching content, it is important to not only focus on the development of students' sports intelligence but also pay attention to the development of other aspects of intelligence. This requires a diversified choice of teaching content. For example, when developing students' sports intelligence, specific ball games can be used as a background in teaching, and students are required to arrange freehand or prepare activities according to music (Root, Snow, Belalcazar & Callary, 2017). When developing mathematical logic intelligence, some intellectual games or reactive games can be used. Questions for a certain problem guide students to think. When developing spatial intelligence, they can purposefully guide students to develop this ability through queue formation exercises and ball tactical exercises. The teacher also selects some sports with regional and national characteristics as the content of physical education classroom teaching, which not only enables students to enjoy physical education but also enables students to understand the cultural knowledge of the region and the ethnic group. Besides, this study seeks to increase the basic knowledge and skills of modern society such as health care and mental health, and carry out sports such as tennis, and aerobics to meet the needs of students in bodybuilding, fitness, and entertainment.

The theory of multiple intelligences believes that human intelligence is a comprehensive manifestation of eight kinds, and each student has their own intelligence characteristics. Therefore, the teaching goal should not be set only in the aspect of physical motor intelligence, but also involve language intelligence and music. The teaching goal of middle school physical education is to not only enhance physical fitness and máster useful sports skills, but also certain health-related knowledge learnt as a result of watching games and enjoying sports (Linn, Gerard, Matuk & McElhaney, 2016; Valentin et al., 2016). For example, mathematical logic intelligence enables students to have their views on some common sport's social phenomena;

[1] Lingnan Normal University, Zhanjiang Guangdong, 524048, China. Email: liurui167@163.com

with music intelligence, students can understand music and are able to play with music and tempo, and can use their limbs. Language expresses one's thoughts and emotions; in terms of language intelligence, students can clearly express their experiences in sports and clarify the main points of a certain skill. Models of diversified education have been implemented and practically applied in the field of teaching. Through the ball sports, it is possible to stimulate and assist the research and analysis of students' diversified education, and effectively improve the teaching efficiency, especially their ability to acquire knowledge. It has a huge enhancement. At present, ball teaching in colleges and universities in China still uses the traditional teaching mode, and there are a number of shortcomings, which have a negative impact on students' basketball skills. In college ball teaching, the full use of the "micro-education mode" can effectively improve the sports level of college ball students and mobilize students' interest in learning balls.

Related Research and Work

Related Research: Status of Diversified Education Research

Most students enjoy playing basketball; however, due to the constraints of the traditional teaching model, students' interest in basketball courses is seriously affected. Basketball courses are only for exams. The goals, ideas, and methods of physical education have all been expressed in the form of a physical education teaching model (Anderson, Farcomeni, Pittau & Zelli, 2016). They have certain design principles and are a combination of structural and functional activities. The teacher-led and mechanical training of students is characteristic of the traditional teaching model, which seriously impedes students' innovative thinking and encourages learning and accepting new information with a passive attitude.

Single Evaluation Subject

In the current evaluation system, the evaluation subject is mostly a single source which ignores the multi-source and multi-directional value of the evaluation subject. The evaluation does not reflect the idea of student-oriented and individual development. As a result, students fall prey to passive acceptance, one-sided development, and lack of independent initiative to take action.

Single Evaluation Method

As a common prevalent practice, the evaluation of many ball games still uses a test paper, which tests the development of the students' academic and various abilities in a certain semester within 120 minutes.

Single Evaluation Content

The content of the evaluation is simple, and the basic written test is used. The written test content is mainly based on textbook-based knowledge, and ignores evaluations of students' learning attitudes, emotions, cooperation, and higher skills.

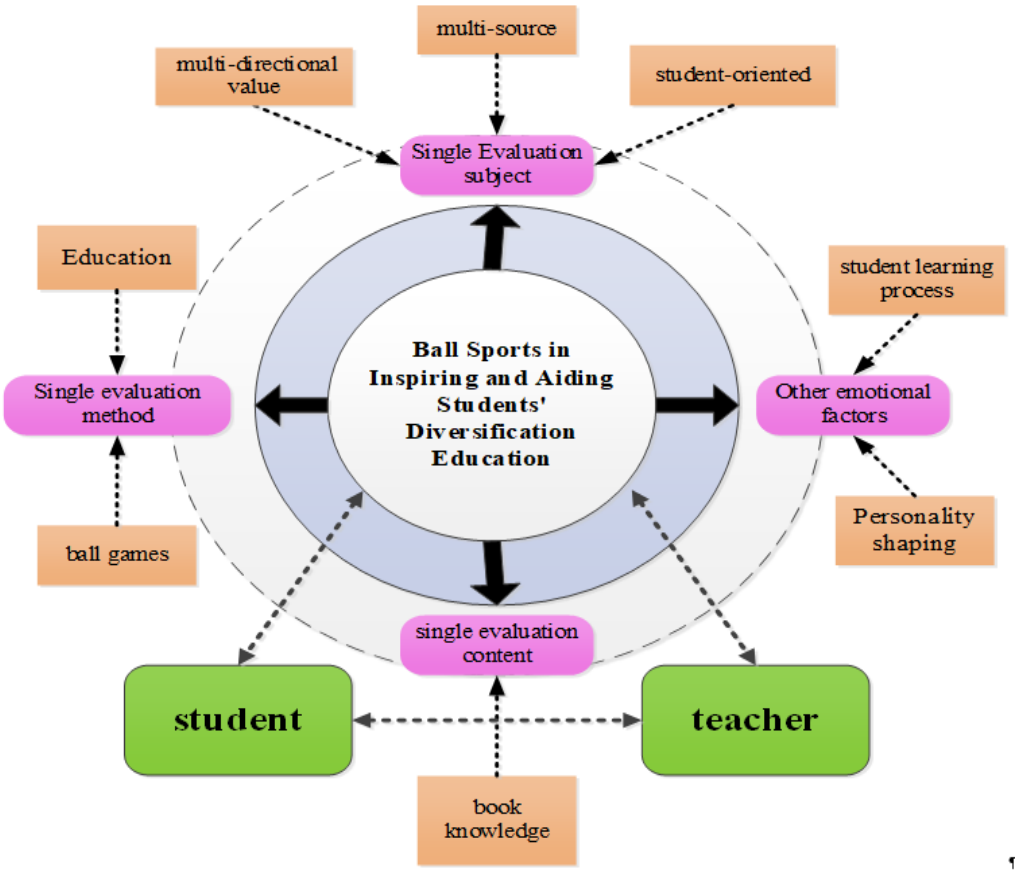

Figure 1. The framework of the diversified education research

Therefore, paying attention to the student learning process and embodying the student-centered multi-disciplinary evaluation method is of great significance in terms of promoting the cultivation of students' multi-faceted ability, especially the cultivation of innovative ability. Figure 1 shows the framework of the diversified education research.

Related Work: Diversification of College Physical Education Teaching Mode

With the development of quality education, physical education teaching in colleges and universities in China is transforming from traditional to open, and the physical education teaching model is developing from single sourced to highly diverse. At present, under the efforts and practice of sports experts and first-line physical education teachers, there have been social cooperation modes, club models, independent exploration models, "learning and teaching interaction" ability teaching mode, "double-specialized" physical education teaching mode, and other series of new teaching models.

Social Cooperation Mode of Physical Education in Colleges and Universities

Students take physical education classes outside the school, sports venues and sports equipment are responsible for the sports institutions outside the school, and physical education teachers are also served by sports professionals outside the school. Social sports institutions and schools have contracted, and the physical education and physical education administration of colleges and universities have been fully represented by the former (Campanelli, Gray, Blake & Hope, 2016). This means that physical education programs, teacher recruitment, venue activity arrangement, the supply of teaching equipment, and the maintenance and storage of the students of the college will be the responsibility of the social institution outside the school. This new model of physical education courses includes Taekwondo, Tai Chi Health, Tennis, Aerobics, Yoga, Bowling, Badminton, Table Tennis, and many more. At the end of the semester, the off-campus sports center reports to the hospital in writing and is subject to inspection and supervision. This kind of college physical education curriculum is an outsourcing model, which is a bold attempt in the context of China.

Club Mode

This represents an early new mode of physical education. In this mode, according to the goal of cultivating quality talents in colleges and universities, the physical and mental needs of college students establish and cultivate the concept of lifelong sports so that they can master one or several sports methods and skills in the long term, and give full play to individual sports expertise, interests and hobbies (Ogunniyi, 2015). Its characteristics are as follows; students are not subject to the teaching progress, teaching content, teaching classes, and other traditional teaching modes, and students follow the rules of physical education, complete physical education tasks, and achieve teaching objectives. In terms of teaching methods, the sports club model changes the traditional teacher-led, unified arrangement, full-fledged mode, and truly takes students as the main body, teaches students to follow their aptitude, and pays attention to individual differences. In the assessment method, it is no longer measured in fixed terms, but through a diversified process evaluation method.

"Double-Special"

Physical education teaching mode is to eliminate the original sports basic teaching project so that college students can master one or two sports projects that benefit them for life. The idea of healthy sports and lifelong education runs through the whole process of physical education in colleges and universities. At present, according to the practice of first-line physical education teachers, more than ten special elective courses and improvement courses including table tennis, badminton, bodybuilding, football, martial arts, skating, and boxing have been constructed (Bui, 2015). This new student-oriented physical education model has broken through the traditional “step-by-step” model, enabling students to choose their own “double-specialized curriculum” according to their specific individual situation, which can not only cultivate students' physical exercise ability but also cultivate their team spirit, competition, and fighting spirit.

"Self-Discovery Interaction Between Learning and Teaching"

The ability-based teaching model is based on constructivism and lifelong sports ideology. It takes scenes, collaboration, meaning construction, and conversation as the four essential elements of physical education. It not only emphasizes that students recognize the subject of knowledge but also requires teachers to have transformed from knowledge inductors and instructors into promoters, helpers, and instructors who actively construct meaning.

Figure 2 shows the diversification of college physical education teaching mode. As mentioned above, it is evident that with the continuous deepening of the reform of physical education teaching model in colleges and universities, the physical education teaching model of colleges and universities has been diversified continuously, however the "health first" model remains the dominant idea, encouraging the student's independent learning in college sports. The direction of teaching has aimed at cultivating high-quality sports talents.

Firstly, content-based recommendations draw similarities between computed users or items, to find similar users or items, i.e., neighboring users, and secondly to score predictions by aggregating the scores of neighboring users. In the usual calculation method, the main intention of correcting cosine similarity as an upgrade of cosine

similarity is to refine the cosine similarity and to consider only the problem of similarity in the direction of the vector dimensions, without considering the dimensional differences between the dimensions. Therefore, a correction operation of subtracting the mean from each dimension will be performed to calculate the level of similarity. Pearson's correlation coefficient is defined as the quotient and standard deviation of the covariance between two vectors.

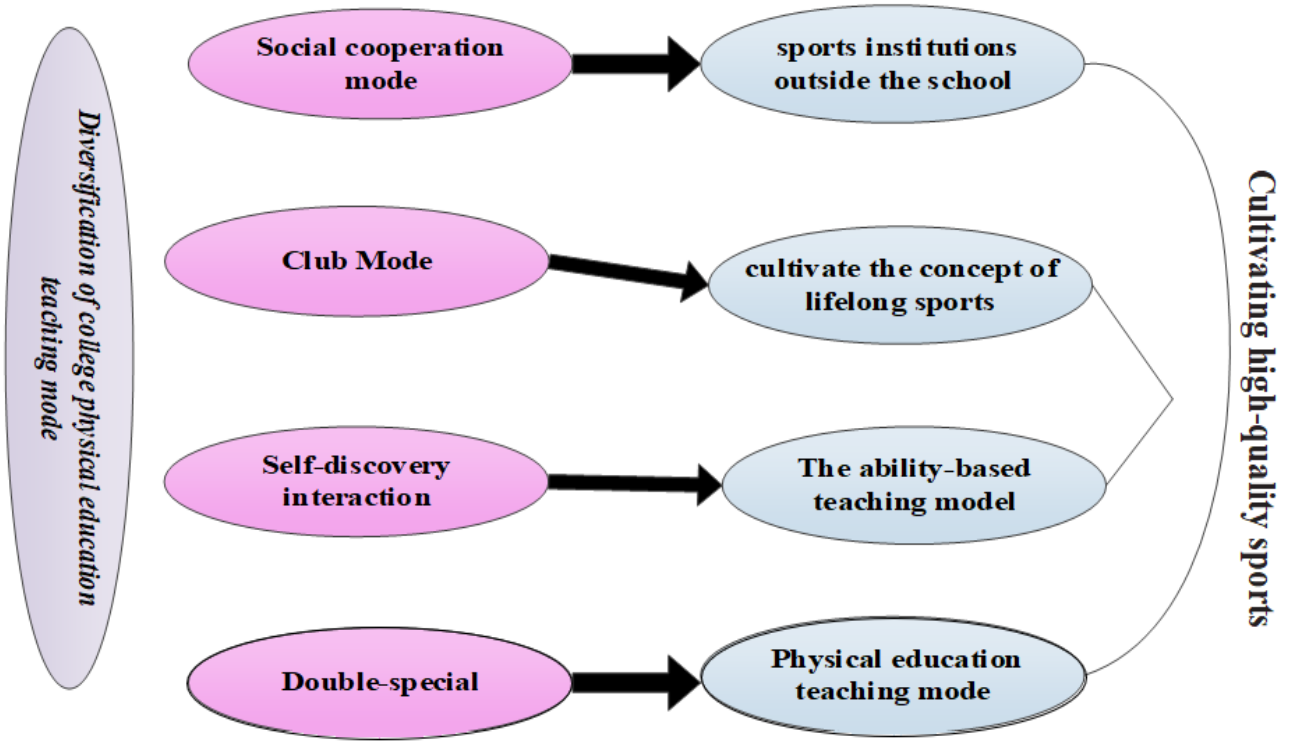

Figure 2. Diversification of college physical education teaching mode

$$sim(x,y) = \frac{\int_i^y (r_{xy} - \overline{r_{xy}})(r_{yx} - \overline{r_{yx}})}{\sum_{ie} (r_{xy} - r\overline{xy})(r_{xy} - \overline{r_{xy}})^2} \quad (1)$$

$$\text{sim}(x,y) = \sin(\text{x} \rightarrow, \text{y} \rightarrow) = \frac{\int_i^y (r_{xy} - \overline{r_{xy}})(r_{yx} - r_{xy}^{-})}{\sqrt{\sum_{ie} (r_{xy} - r_{xy})^2 (r_{yx} - r_{yx}^{-2})}} \quad (2)$$

After completing the similarity calculation, the unknown evaluation is predicted by aggregating several neighbors, and the rating of Item s by user x can be predicted by aggregating the evaluations of the most similar users of user x and y.

Badminton has gradually attracted many students' interest under the continuous promotion and development of the sport in higher education institutions, and they would choose badminton to exercise their physical and mental health after their studies. However, in the survey, it is found that the feedback of students' satisfaction with the badminton court and equipment built by the school is not very high, as a badminton court can accommodate relatively few people to play sports at the same time, making students somewhat hindered in the process of participation. Students' interest in badminton varies and their motivation to participate is unstable, therefore, if more venues and equipment can be provided or the time of use can be classified in batches so that students can participate more conveniently, it will gradually enhance the importance of badminton in students' sports awareness. Therefore, higher education institutions also need to increase the number of badminton courts or improve the use system and check and replace the equipment and facilities on time to allocate the limited resources more reasonably and create a more suitable sports environment for students.

$$\min_P \sum_{i=1}^n \frac{1}{2} \left\| x_i - X_{P_i} \right\|_2^2 + \chi \|P\|_{2,1} \quad (3)$$

To understand and figure out what the users need or want, the recommendation function mines and organizes the search records and further analyzes the user's behavior on the website to obtain some information about the user's preferences, and then selects the data that meets the user's needs and the user's possible preferences from the available data and recommends relevant data or products to the user.

Construction and Implementation of Diversified Teaching

Evaluation of Subject Diversity

The evaluation of subject diversity means that the evaluator is no longer only a teacher but also includes student evaluation. Student evaluations include student self-assessment, peer review, and group evaluation (Bui, 2016). Self-evaluation is to review and reflect on the self-

learning ability, class attitude, and learning outcomes of the learning process, and point out their gains and weaknesses. Mutual evaluation is a mutual evaluation between students, pointing out their respective sets of strengths and weaknesses, mutual encouragement, and common areas of improvements (Snee, H. Devine, F,2014). The panel evaluation is an evaluation of the group itself, members of the group, and other groups and members.

Evaluation Content Diversification

The content of seminar-based teaching evaluation has diversified and been comprehensively evaluated on the basis of students' learning attitude, learning process experience, and skill proficiency.

(1) Learning attitude and cooperation spirit. Graduate students take the initiative and conscientiously complete their learning tasks; can they cooperate with others; can do a good job in collecting information and other aspects to evaluate (Yuan, M., Sude, Wang, T., Zhang, W., Chen, N., Simpson, A., & Dervin, F. 2020).

(2) The experience gained from learning activities. Reflected in self-reports, group discussions, and learning outcomes to reflect graduate self-participation in research-based learning activities, research, and innovation.

(3) Innovative spirit and practical ability. Through the graduate students in the learning process, they independently discover and ask questions, analyze problems, and solve problems in the whole process.

(4) Learning outcomes. Through the study of learning outcomes (research papers, survey reports, speech reports, etc.), students' knowledge of the relevant knowledge and skills is examined, demonstrating the effects of research-based learning.

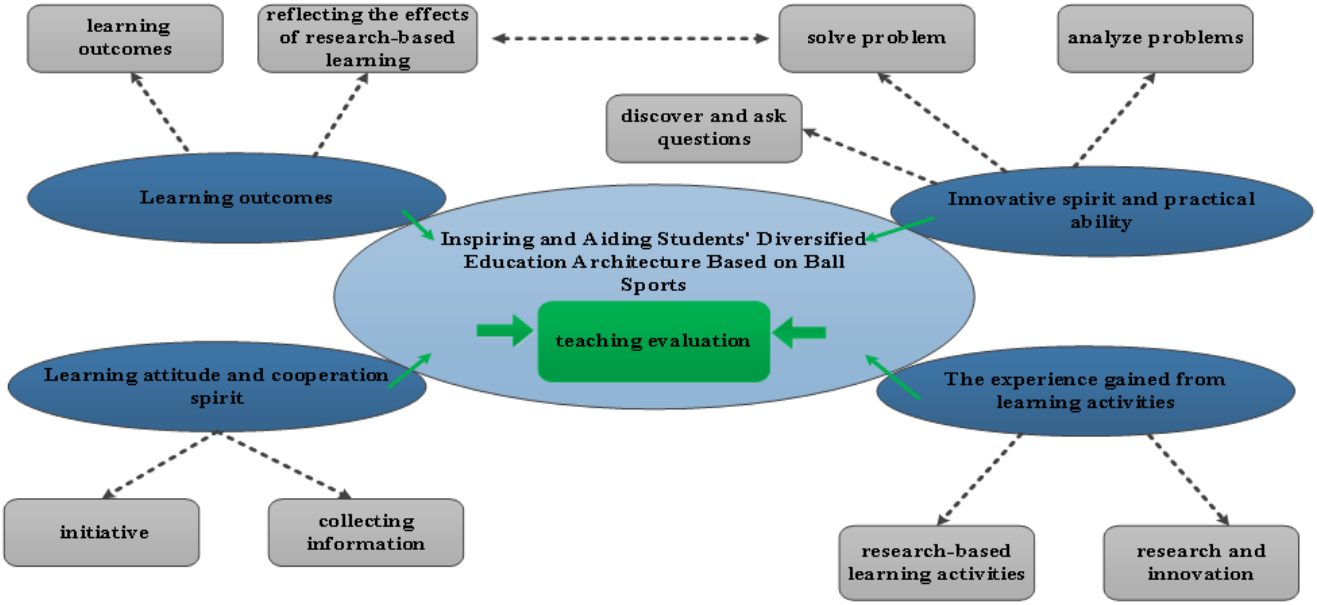

Figure 3. Inspiring and Aiding Students' Diversified Education Architecture Based on Ball Sports

Diversification of Evaluation Methods

It bears to note that evaluation of seminar teaching it is beneficial to the completion of the course objectives, which is conducive to fully mobilizing the participation of teachers and students and promoting the use of various evaluation methods and forms to give full play to the diagnosis of evaluation.

(1) Self-evaluation combined with an evaluation of others. The purpose of the multi-evaluation of seminar-style teaching is to fully mobilize and cultivate the initiative, conscious initiative, and independent creativity of teachers and students, instead of asking teachers to sing a "one-man show." Multi-evaluation not only pays attention to the results of self-evaluation and mutual evaluation, but also pays attention to the process of self-evaluation and mutual evaluation (Liu, K., & Ball, A. F. 2019).

(2) Combination of qualitative evaluation and quantitative evaluation. The students' understanding and attitudes in the seminar-based teaching activities, the student's performance in the whole process of the activities, the contribution to the group's research results, the harvest experience and emotional experience in the seminar-based teaching, giving grades, reviews, credit systems, and the percentage system are used together (Cumming-Potvin, W., & Martino, W. 2018).

(3) Combination of formative evaluation and summative evaluation. Research-based teaching evaluation.

Students develop and improve throughout the learning process. Therefore, during the whole duration of the course, students learn though questions and answer sessions, lectures, and other means. This includes thorough evaluation to make a diagnosis, gradually adjust and improve, and finally form a summative evaluation

based on the whole research process. This study explains the meaning of the paradigm and points out the analytical framework for paradigm migration. At the same time, under the premise of instructional design paradigms to determine the presence, combined with analysis of the existing paradigm of instructional design, instructional design concepts, and paradigms, summarizes the definition of instructional design paradigm and refers to the teaching migration design paradigm as distinct from the natural science paradigm is not exclusive. Through the analysis of smart classroom instructional design, the basis and strategy of smart classroom instructional design are proposed. Faced with the urgent demand for ice and snow professionals in the entire ice and snow market, it has become an important task for local colleges to cultivate qualified and applicable compound ice and snow professionals.

In general, the multi-evaluation model of seminar-based teaching focuses on diversifying the teaching evaluation subject, diversifying the evaluation content, and diversifying the evaluation methods, focusing on guiding students to discover and ask questions, so that students can discover that they can also study esoteric problems (Huaman, 2014). Through students' active thinking and experimentation, students will develop their self-confidence and independent thinking, and comprehensive analysis skills (Van Poeck, K., & Östman, L. 2018). Students change their patterns from passive learning to teacher-led guidance, take independent initiative to acquire knowledge, and enhance their ability to innovate. The reference operation mode of the multi-evaluation of seminar teaching is shown in Table 1.

Table 1.

The reference operation mode of the multi-evaluation of seminar teaching

Ratio of achievements	Comment content	Evaluation ratio	Evaluation level
Score	Self-learning	40	A. Answer the question correctly,
	Classroom learning	10	Master;
	Cooperative learning	40	B. Basic answer
	Participate in the discussion		Clear, preliminary understanding;
	Creativity		C. Can't answer
	Learning attitude	10	

Case Study and Analysis

Research Objects and Methods

Research Objects

Students in the physical education college participate in the cognitive situation of badminton. The survey found that the school badminton courses and clubs in both forms, the content taught by teachers and the content of the club's activities are relatively consistent. However, students fail to absorb and process learning content from different forms of activities; therefore, repetitive, single, boring badminton content will greatly reduce the interest and motivation of students to learn, and mainly focus on the basics and skills learning, for injury prevention, the content of the badminton team is less than the content of the game, such as the rules of the game. Some schools will organize a badminton school team, compared to badminton courses and clubs, although the training content in the guidance and teaching will be different; for students with higher technical ability, the instructor failed to provide more guidance on tactics and game psychology based on training, therefore, the richness and systematicity of training also need to be improved. In the overall development environment, the evaluation mechanism of each development form is not clear enough, and relatively speaking, only the curriculum has a clear evaluation mechanism, as the evaluation management of clubs and school teams is relatively inadequate, which is not conducive to the formation of a more effective development trend of each development form.

Badminton courses are the main way to educate students in schools to learn badminton as they intersect with the sport, form an image of it, and ultimately become a fundamental part of their participation. At the stage of first-year entry of students, the institution carries out elective badminton courses that can be chosen in both directions, which represents an important learning opportunity for students who are not exposed to, and want to learn about, badminton. Through the teacher's scientific and careful teaching and guidance, professional knowledge, and technical instruction, students can participate at the beginning of the learning process to build a good foundation, and also continue to build upon a solid foundation, therefore, the higher education institutions initiating badminton course is both, necessary and desirable.

Research Methods

Literature Method

According to the needs of the paper, it is important to determine badminton-specific literature in various journals, as well as the books on sports psychology and general psychology that have been reviewed by the author.

Questionnaire Survey

Questionnaires are distributed to 140 students of Xiangshan Sports Institute, including 30 departments of physical education, social and physical education, 30 people (15 men and women), and 20 athletes (10 men and women) (Semien et al., 2016). 140 questionnaires are distributed, 140 are recovered with a recovery rate of 100%; 125 valid questionnaires, the effective rate was 89%.

Mathematical Statistics

The 125 questionnaires collected are analyzed by SPSS17.O

software. This form is generally a derivative of the organization of students who have certain skills and are willing to make friends practice outside of class. The person in charge through consultation with members of the unified arrangement of time set the venue for members to communicate and exchange skills and information. This allows for targeted organization of student participation and effective improvement in their badminton skills. For this reason, it is best to have a professional teacher responsible for increasing their practical experience and professional guidance for students. Therefore, more targeted training should be available students who love badminton and have some badminton-related knowledge and skills, to provide a better place to communicate and learn, so that students can more easily find like-minded partners.

$$tab_R(i) = r((G_{mean} + 1 + M - G_{mean-2}) \times cdf_R(i)) \quad (4)$$

$$-div\left(\frac{\nabla^a u}{|\nabla^a u|+p}\right) + \lambda_e(u - u^0) = 0 \quad (5)$$

Compared with other forms of training, the program is a membership system with rights and obligations and is a profitable organization. Participating students have a clear need to improve their skills, choose to participate according to their wishes, and pay the appropriate fee to become a member. There are professional coaches to guide and develop a suitable training plan. On-campus self-organization, as supervised by the Department of Physical Education (Department), and professional badminton teachers are responsible for hosting, and the operating mechanism should be regulated by the unit to which they belong.

$$F_i^d(t) = \sum_{j \in K} rand_j F_{ij}^d(t) \quad (6)$$

The organizers should be a semester or academic year as a cycle, to the affiliated department to pay the required venue fees, lease qualified field facilities, and separate sports time. Students should deliver a small fee according to the number of training sessions to strengthen the strong motivation of students to learn and build a good foundation for the members of the school team. Moreover, students with a certain level of badminton sports can become assistant coaches or auxiliary coaches to help low-level students follow the training plan, Besides, the organizers give appropriate subsidies according to the number of substitute lessons and time. However, it is understood that not every higher education institution has teachers with professional badminton skills. Some institutions undertake collaborative initiatives to lease badminton courts to the public and introduce off-campus for-profit organizations for cooperation.

Data Sources

Interest is a kind of cognition tendency of people to things, accompanied by a positive emotional experience, which has a great impetus for individual activities, especially with respect to individual cognitive activities (Tekin-Iftar & Olcay-Gul, 2016). Active interest in badminton is an important factor in promoting badminton participation. Improving the level of interest in learning badminton can improve the learning efficiency of badminton. Interest is a key factor in choosing to play badminton. Once students have a positive interest in badminton, they can maintain long-term attention and learn actively. The interest level of students in the gymnasium for badminton is as follows:

Table 2.

Student's interest level survey on badminton

Attitude	Very like	Like	Generally,	Dislike	Sum
NO	28	67	18	12	125
Rate	22.4%	53.6%	14.4%	9.6%	100%

As can be seen from Table 2, of all the students in colleges and universities,70% of the students liked badminton, and only 14.4% and 9.6% of the general and report a dislike of badminton. By and large, students are interested in this sport.

Motivation is the psychological tendency or internal drive that motivates and sustains the action of an organism and directs their actions toward a certain goal (Nguyen & Bui, 2016). Good motivation to participate in badminton can encourage students to learn and participate in this sport, which is a necessary condition to promote this sport. The survey shows that the purpose of sports school students participating in badminton is multi-faceted and positive. The individual's preference for badminton is the main motivation for students to participate in badminton. The proportion required for the competition is only 4.8% of the total number, which is the most important reason. After interviews with students, the reason found responsible for this result is that most students have not participated in badminton competitions, and there are only a limited number of schools hosting the same.

The researcher uses SPSS to conduct paired sample tests for the four groups of scores obtained from the experiment and obtained the results shown in Figure 6. In Figure 6, sig refers to significance, and sig values are used to measure the probability that the means are equal. Sig values less than 0.05 indicate that the means are equal with less than 5% probability and not equal with greater than 95% probability, indicative of the probability that the means of the two data groups being equal is relatively small, which in turn indicates that the two groups are significantly different. Sig<0.05 also means that the correlation coefficient is statistically significant, i.e., the variables are indeed correlated.

Badminton is a sport with very high technical requirements, and when the level of students' ability to play/perform increases, the demand for technical and tactical skills will also rise, requiring teachers to use their profound knowledge and skill structure to provide professional guidance and training for students. If the school's badminton education resources do not match the development needs of students, then the full development of badminton is not possible and therefore, teachers also need to improve at the right time, fulfilling their professional need. Therefore, even when the school has professional human resources, it cannot allow the teacher to stagnate and therefore, become unable to learn new and more effective teaching skills and methods; in this regard,

the school administration should encourage and support teachers to participate in some sports associations or social institutions and other organizations such as training, and in the appropriate range to give help, while the teachers should undertake efforts and lead the school team to achieve positive results and provide successful incentives. However, it is understood that not all higher education institutions have professional badminton teachers, and non-professional teachers cannot instantly improve their badminton technical coaching ability through short training, so the need to use the power of external support of excellent resources to improve and train badminton talent.

Test Result

Badminton is a group of ball sports that have been dominated by skill-based nets. Although the footed basket and other sports are also exercised employing equipment, badminton has advantages in comparison. For ordinary badminton enthusiasts, activities are available both indoors and outdoors (Daverne-Bailly & Dutercq, 2016). It is interesting that there are no restrictions on the age and competence level of the participants, and there is no venue or time limit. Besides, since there is no physical confrontation, it is safer than the foot basket row as there is no confrontation between the body, and players are less likely to be injured during exercise. This is illustrated in Figure 4.

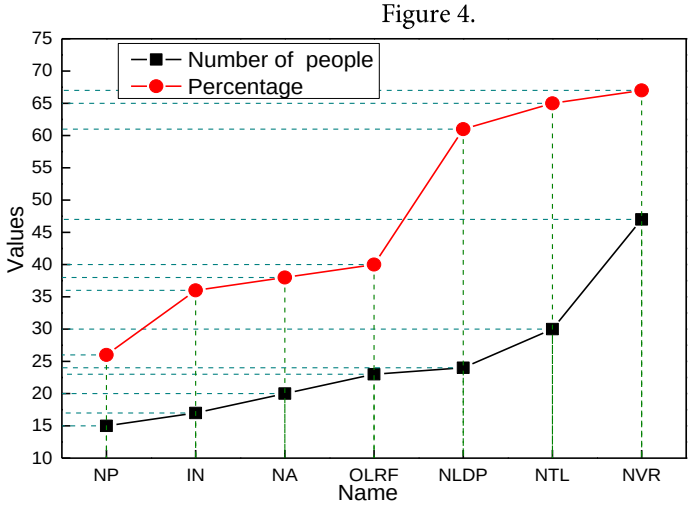

Figure 4. The Advantages of badminton compared to other ball games

It can be seen from Figure 4 that no physical confrontation between people is its greatest advantage. The physical injuries of students in Sports School are mostly from ball games, gymnastics, track and/or field. Therefore, badminton sports have become the biggest advantage because of their relatively higher level of safety.

The results of the interviews with students show that most students have positive opinions about the personalized teaching system based on big data, which indicates that the personalized teaching system has been recognized by most students and plays an important role in improving students' learning efficiency and strengthening the interaction between teachers and students, and among students. Due to the fact that a personalized teaching system contains rich learning resources and knowledge, it can stimulate students' interest in learning, clarify the direction of learning, enhance students' independent learning ability, and play a positive role in promoting students' personalized development, as shown in Figure 5.

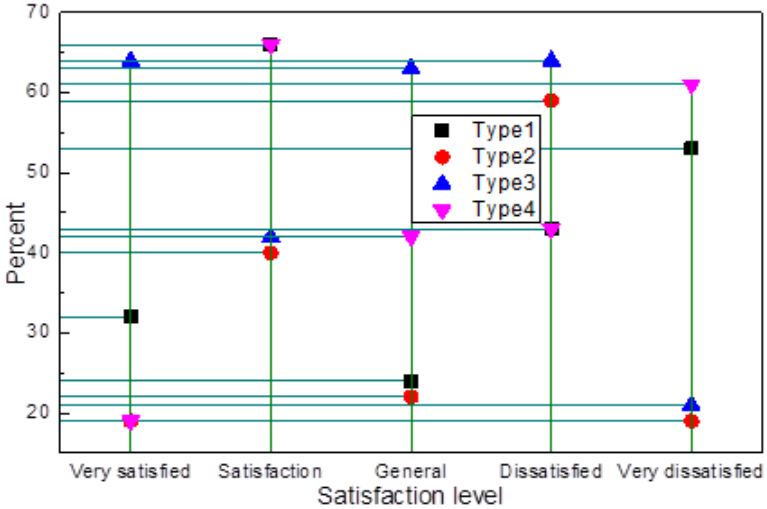

Figure 5. Evaluation of individualized teaching system

In terms of students' perceptions of the personalized teaching system based on big data, as shown in Figure 6, 80% of students are satisfied with the personalized teaching system and agree that the system can effectively promote their abilities in various aspects. 28.57% of students think that the content and functions of the personalized teaching system are comprehensive; however, 26.41% of students still think that the content and functions of the system need to be expanded. Furthermore, 28% of the students think that the content and functions of the system should be expanded. This indicates that the personalized teaching system based on big data is helpful in developing students' personalities and promoting their progress; nevertheless, in the future, it is important to add corresponding contents and functions to meet students' needs and make the system more perfect with respect to meeting students' developmental needs in all aspects.

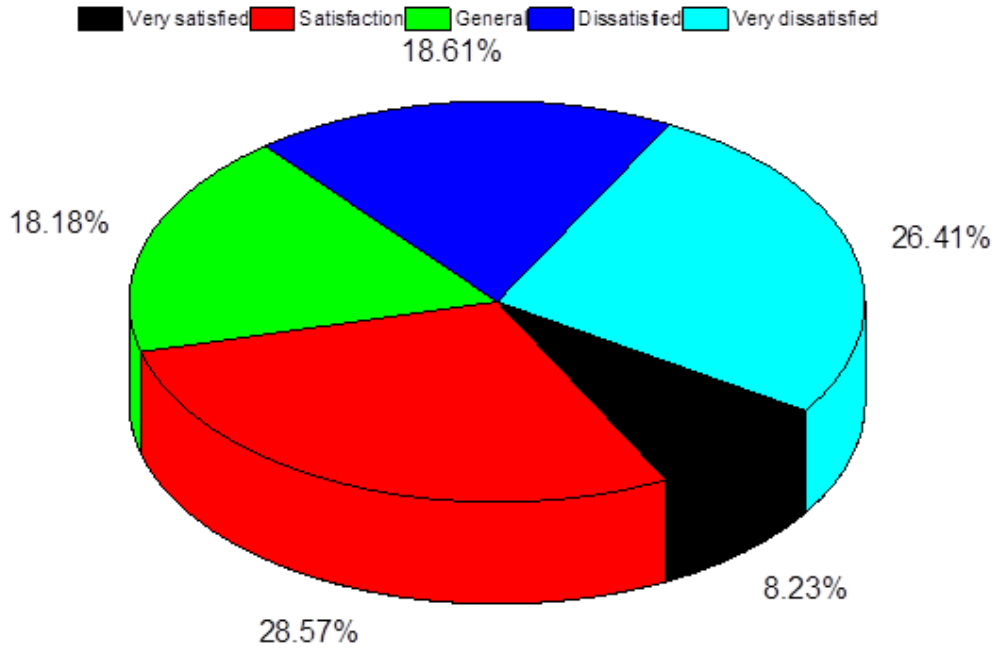

Figure 6. Classroom motivation analysis

By digitizing the teaching process, the data generated from the whole teaching process, such as pre-study self-assessment, communication, and interaction with the teacher, follow-up testing, post-class homework consolidation, and standard exams (scanning and uploading) conducted by students using Pad, is collected, and the wrong questions of relevant knowledge points are automatically included. When pushing practice questions of knowledge points to students according to the wrong questions, we should push practice questions of upper and lower knowledge points related to the knowledge points according to the interrelationship of each knowledge point in the subject knowledge system tree, etc.

The study also makes a hierarchical design for the difficulty level of the pushing practice resources, which can be divided into three types: basic practice questions, consolidation practice questions, and improvement practice questions, starting with the simple ones. For example, for the knowledge point of a simple calculation of chemical equations, students should be given practice questions on the law of conservation of mass first, then after the basic knowledge point is mastered, students should be given the knowledge point of writing chemical equations, and finally, students should be given the knowledge point of a simple calculation of chemical equations. When the basic knowledge is mastered, then students will be given the knowledge of writing chemical equations, and finally, they will be given the knowledge of simple calculation of chemical equations, from easy to difficult, layer by layer, so that students can thoroughly master the knowledge content and realize personalized learning. Another major feature of the integrated training management model proposed in this paper is the front-loading of the practical aspect, which is particularly important for strengthening cooperation between schools and enterprises. School-enterprise cooperation is a win-win initiative between institutions and enterprises.

Discussion And Analysis

Establish Correct Teaching Objectives and Satisfy Students' Desire for Ball Knowledge

This study finds that it is essential to develop relevant learning strategies to promote the progress of students' learning ability effectively. At the same time, ball sports are required to be carried out in a teamwork manner which fosters the collective sense of honor of the students (Snee & Devine, 2014). Facts prove that diversified teaching is in line with the ball-based teachings based on the differences of students, and the sports spirit of ball games. The educational model of learning makes the teaching concept meticulous and the teaching details are coordinated. It is completely suitable for the long-term development of students and promotes improvement in students'

knowledge, ability, and cultivation.

Teachers stratify knowledge points according to different levels of difficulty, and through the technology of learning data collection and analysis, fully consider each student's homework test situation and knowledge proficiency, group students, and match them according to three levels: Excellent, Medium, and Qualified. In the class, teachers can give students questions of different difficulty levels, which meet the individual needs of each level of students, improving teaching efficiency and adding a truly personalized touch to the practice of educational instruction. Teachers can also focus on students who have problems with the same knowledge point according to the knowledge point correctness and error, and carry out targeted explanation and training, helping students to improve quickly and make rapid progress. Moreover, through knowledge point tagging and big data analysis technology, teachers can record micro-lessons for the important points or high-frequency error knowledge points of the course and push them to the corresponding students, who can study the knowledge points in class and solve their own learning "problems".

Traditional computer-assisted teaching can only complete a single one-way interaction between humans and computers, and between teachers and students, which is not enough to stimulate learners' interest in learning, as the learning process tends to becomes boring. The personalized learning interaction design based on big data can help learners with the above confusion. With the help of big data technology, feedback information between teachers and students, and among students can be collected promptly, making the transition from one-way simple communication to a two-way process that can transmit various information. Personalized learning interactions can be divided into interactions between teachers and students, interactions between students and students, and interactions between students and resources. On the one hand, the university can attract enterprises into the school, and the school can provide the existing site and equipment, and the enterprise can provide customer resources, products, real business and production, and management atmosphere, and both sides can collaboratively build a practical training center, integrating theory and practice. This joint partnership model can solve the demand for practical training for a large number of students. On the other hand, enterprises have experience in the operation and management of training programs for teachers and practical training management for students. Moreover, for the main body of the institution, it is relatively easier to organize students to use the practical training base for practical training, certification, and accreditation, etc., which not only provides professional practical training equipment base but also can open up the direct teacher distribution and integration between enterprises and schools, as shown in Figure 7.

Effectiveness of student learning can be affected by the use of different teaching methods by teachers. In the implementation of the curriculum, the state of student learning and classroom performance are different when teachers adopt different teaching methods for the same content, therefore, there are constantly experts and scholars actively working on new teaching methods to give students a better learning environment and stimulate their potential. Teachers generally use a language-based approach to transmitting information to students by explaining knowledge and techniques to enhance students' learning and understanding, while combining physical exercises to guide students to practice the techniques they have learned and deepen their understanding to master new skills. The teaching process is executed by way of explanation and practice, and less often uses teaching methods based on scenarios and competitive activities, occasionally organizing and arranging games for students, and for the teaching methods based on direct perception, using modern technology and other methods to teach in a few exceptional cases.

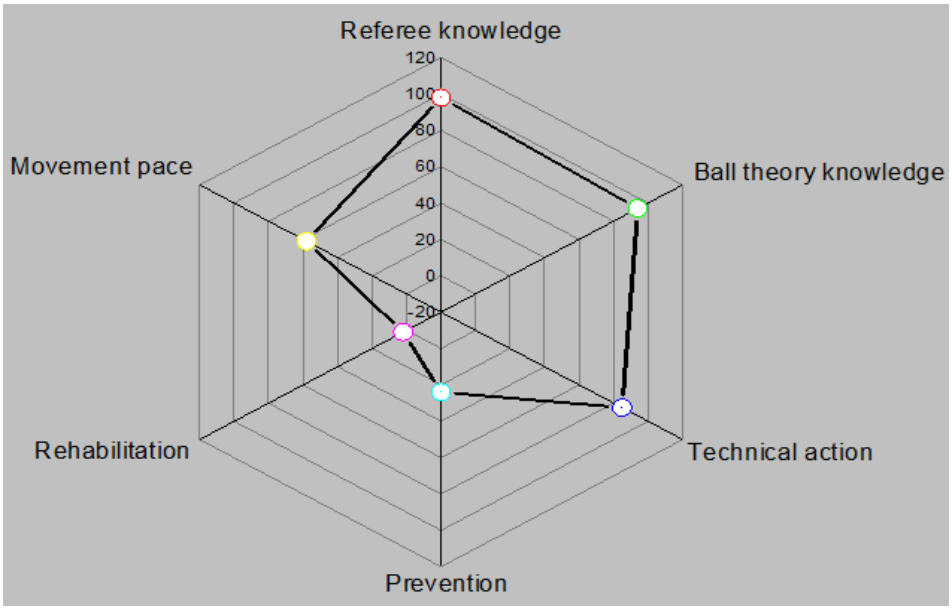

Figure 7. Teaching content of the course

Students often participate in badminton with different motives. Primarily, the course is a way for students to actively understand badminton, whether the infrastructural set-up is reasonable and whether teachers can meet the needs of students and other teaching conditions, insofar as these interfere with the motivation and enthusiasm of students to learn. For this reason, there is a need to investigate the evaluation of students on badminton lessons, to understand the effectiveness of the school badminton lessons and teachers' teaching style and other aspects. The results of the survey on students' evaluation of badminton courses and teachers in higher education institutions show that the institutions currently offering badminton courses do not fully meet this condition, the atmosphere of the courses and the overall effect, which does not reach the expected idea, fails to promote students' awareness of active participation in badminton, as shown in Figure 8.

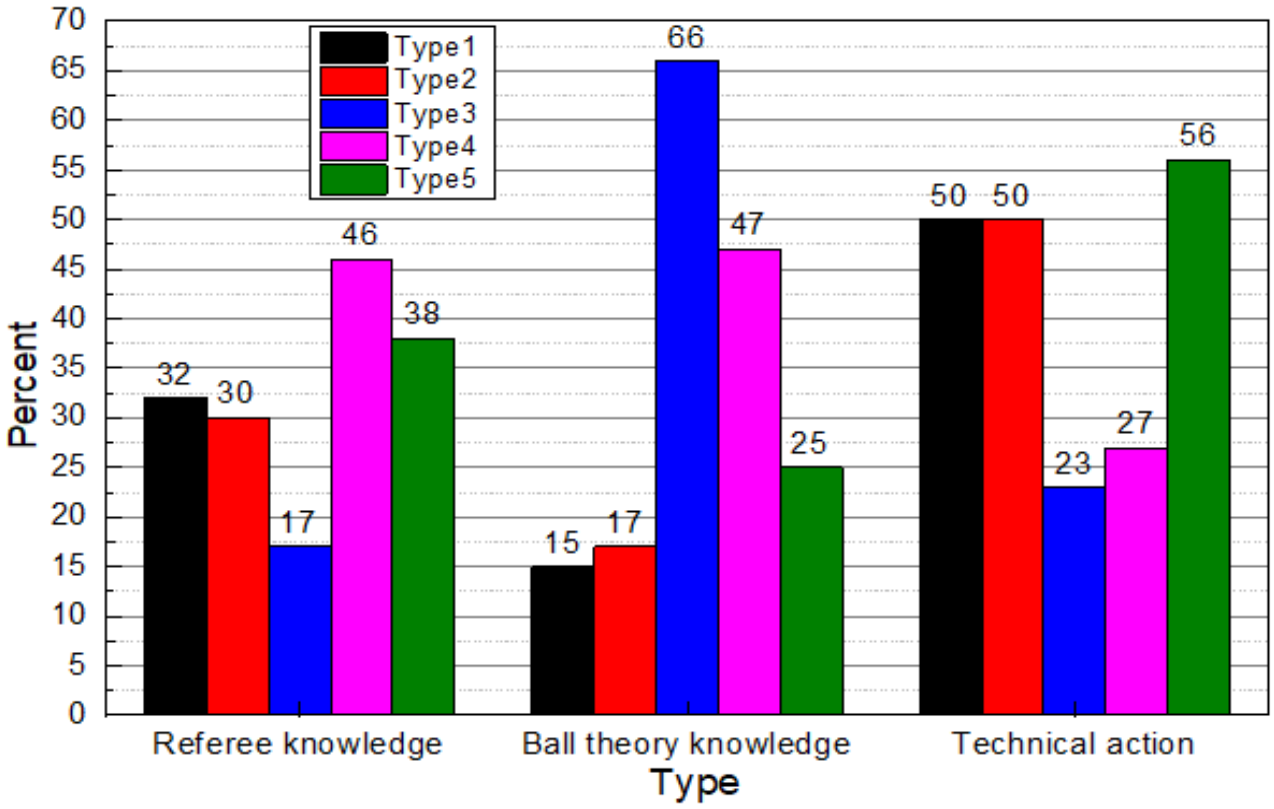

Figure 8. Students' evaluation of teachers' teaching

The teacher's technical level can be recognized by students, which is conducive to the formation of a good classroom atmosphere. As shown in Figure 8, 29.36% of students feel satisfied, 57.80% of students feel average, and 12.84% of students do not recognize the teacher's technique enough and express dissatisfaction. 14.78% of the students feel satisfied with the teacher's teaching methods, 67.80% of the students feel average and did not have too much feeling, 17.42% of the students are dissatisfied and said they could not accept it well; 36.67% of the students who feel satisfied with the teacher's teaching attitude think the teacher is more responsible and satisfied, 48.33% of the students believe the attitude is average and 15.00% of the students feel dissatisfied.

Carry Out Practical Teaching Evaluation, Effectively Promote the Improvement of Students' Comprehensive Moral Cultivation

The problems in teaching are mainly reflected by the actual teaching evaluation. Teachers can grasp the degree and skill level of students' learning knowledge through teaching evaluation. After the ball course has been conducted for a period, teachers are used to evaluate students or students to evaluate students. In the form of teacher organization, the actual teaching evaluation has been carried out to find out the problems in teaching from the all-around ball learning of students. For teaching evaluation, focus should be on encouraging students' evaluation and giving full play to the teaching evaluation.

A colorful club can increase the friendship and communication opportunities between students, enrich their spare time and make it easier for students to find friends with similar interests, for this reason. clubs are meaningful for students. Badminton club recruitment is generally after the new students enter the school; while many students will actively enroll, different students will have different motives for participation. As shown in Figure 9, 67.31% of students choose to join for physical exercise, indicating that students recognize the value of badminton and have basic sport's needs; 37.20% of students want to improve their technical level, indicating that some students have a higher level of demand for badminton; 74.16% of students join the club for entertainment and friendship, indicating that students

generally have active desire to make friends, but also that badminton can help them provide more relaxed communication opportunities; 23.28% of students are motivated to repair the club credits while 13.67% are motivated by other reasons.

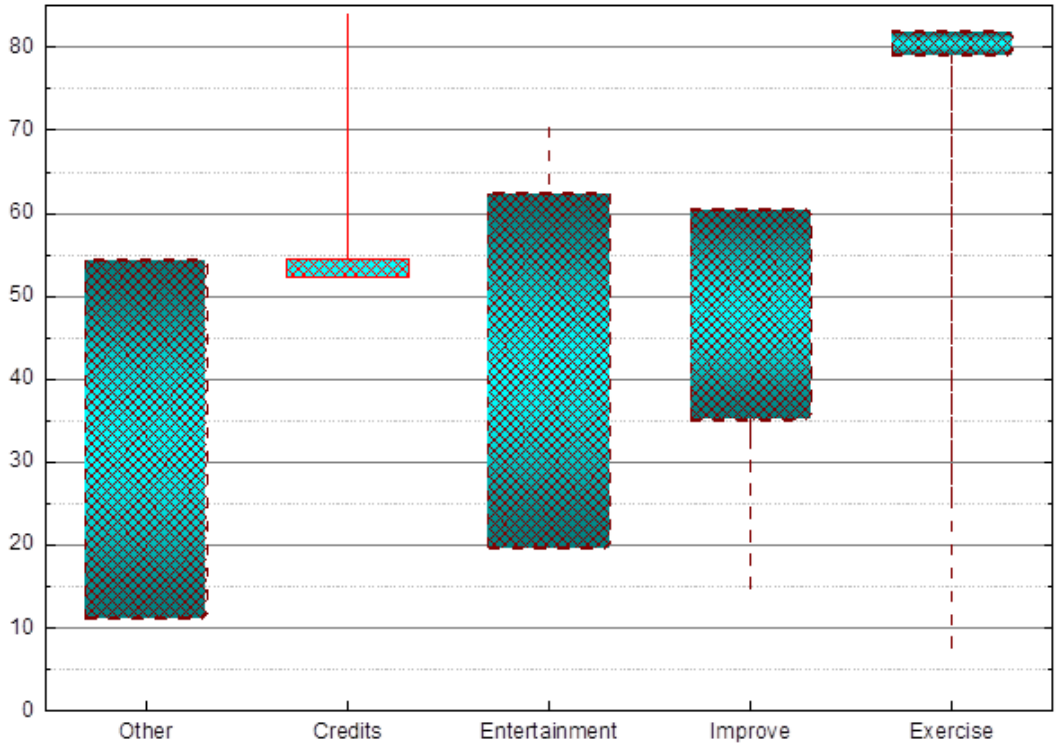

Figure 9. Students' motivation to participate in ball clubs

The establishment of student clubs can overcome the shortage of curriculum teaching, expand the space of school education, promote the use of students' after-school time, and enhance students' self-management ability. Through surveys and visits, it is possible to know that the school provides individual club time for students' activities every week and asks club leaders to submit semester-wise activity plans every semester; however, in practice, the clubs do not make good use of resources to implement the plans. Students can learn the basic technical movements and theoretical knowledge in the club at the beginning, however beyond this, the club is more of an entertainment, which does not allow students to improve step by step, although some colleges will have teachers responsible for guidance. In the badminton club, technical action learning, theoretical knowledge and the organization of recreational games are about 70% of the activities that students will participate in after joining the club, and relatively few activities need to be organized and arranged as opposed to organizing competitions and fellowships, indicating that the club can have a better impact on students with zero foundation; however, it bears to note that the club only has limited role in further enhancing the abilities of basic students.

Badminton has gradually attracted many students' interest with the continuous promotion and development of the sport in higher education institutions, as students increasingly choose badminton to exercise their physical and mental health after their studies. However, in the survey, it is found that the feedback of students' satisfaction with the badminton court and equipment built by the school was not very high, as a badminton court can accommodate relatively few people to play sports at the same time, hindering the participation of a greater number of students. Students' interest in badminton varies and their motivation to participate is unstable, therefore, if more venues and equipment can be provided or the time of use can be classified in batches so that students can participate more conveniently, it will gradually enhance the importance of badminton in students' sports awareness. Therefore, higher education institutions also need to increase the number of badminton courts or improve the use system, and check and replace the equipment and facilities on time to allocate the limited resources more reasonably and create a more suitable sports environment for students.

Create A Good Teaching Atmosphere and Comprehensively Mobilize Students to Learn the Ball

Diversified teaching enables middle-level students to place themselves in the role of ball games. This way, they can fully mobilize the enthusiasm of students to learn the ball and play an important role in the improvement of students' learning of ball knowledge and skills. The significance of diversified teaching is to pay attention to the importance of the details of ball teaching. Teachers should find out the problems in the details of students' ball education and find out the discrepancies in students' learning ability, according to their individual differences. The establishment of teaching objectives should not be

determined according to the teacher's thinking but should be based on the students' specific needs for ball knowledge, and not the subject position of the teachers occupying the teaching objectives. All students should be educated and be the subject of teaching objectives. "Professional education" can also strengthen students' love of ball games, and exercise.

Conclusion

The choice and application of physical education teaching mode are not only subject to people's understanding of the model but also depend on the teaching ideas and teaching ideas that people have formed. It directly affects people's effective selection and application of physical education teaching mode. The effective choice of the teaching model must be combined with the actual situation of the school and must be compatible with the school faculty's qualification or experience level as well as the school's venue facilities. No teaching mode is omnipotent. According to the development trend of the teaching model, it is not desirable to exclusively focus on one certain teaching mode, but to construct a diversified college physical education teaching model in accordance with the teaching needs and realize the mutual learning and supplement between different teaching modes. Function provides a free choice of teaching practice to meet the growing sports culture needs of students. It is important to pay attention to the coordinated development of students' mind and body, attach importance to regional conditions and characteristics of the times, highlight the characteristics of multiculturalism, and construct the diversified college physical education according to different historical periods, different courses, different teaching objectives, and individual differences among students to make the best choice or combination. Diversified teaching seeks to adapt to the developments in society in today's information age, and it is in line with modern educational concepts. Through research and analysis of the ball games in stimulating and assisting students' diversified education, it is clear that the application of ball games in colleges and universities is consistent with the students' own development needs and stimulates the students' potential. Moreover, it also promotes students while exercising. The development of many aspects has laid a good foundation for students' study and development and has promoted the educational value of ball teaching in colleges and universities.

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