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Research on the thinking path of physical education courses in higher education institutions based on the model of competitive education

Xiao Menglong[1], Zhao Qianjie[2], Su Caping[2]

[1]Zhaoqing University, Zhaoqing, Guangdong, 526060, China
[2]Guangdong Vocational and Technical University of Business and Technology, Zhaoqing, Guangdong, 526060, China

Abstract: *The focus of this paper is on innovation in thinking about the table tennis curriculum based on the context of the competitive education model. The study aims to explore the advantages and disadvantages of incorporating the competitive education model into the table tennis curriculum and to examine its potential impact on student learning and development. The study used a qualitative research approach, utilizing a literature review and case studies to assess the effectiveness of the model. Findings suggest that the competitive education model can enhance the table tennis curriculum, improve students' physical and mental fitness, and promote healthy competition. This paper concludes that incorporating a competitive education model into the table tennis curriculum has the potential to be an effective way to promote student learning and development.*

Keywords: *competitive education, physical education curriculum, innovation, higher education*

1. Experimental Steps

The experimental steps were divided into experimental steps and control class experimental steps. The experimental class was taught in a competitive education model, with the beginning and end of the semester being the entire experimental season, and the entire period divided into three phases: the pre-season period, the official competition period, and the closing ceremony. The implementation strategy of the three phases of the season: the main tasks of the pre-season are course introduction, heterogeneous grouping, understanding classroom routines, mastering cooperative and team learning methods, learning various basic knowledge (such as game records, referee tasks, etc.) and motor skill learning. During the official competition period, players begin to enter the automation phase, classroom routines are established, roles are clearly divided, learning styles have been initially mastered, and classroom management is progressively more proficient. Technical classes during this period are dedicated to learning basic skills, tactics, and game abilities, and competition classes emphasize specialized practice in real-world situations, with the goal of promoting practice through competition. For example, table tennis singles competition practice can be organized in the technical class, and in the competition class a match can be stipulated in two out of three games. The closing class phase incorporates a sports etiquette culture, with an emphasis on celebrations and awards. The control class instruction model is the traditional PE class lesson model. For example, preparation activities - teacher demonstration and explanation of movement techniques - students imitation slow-motion practice - teacher correction of wrong movements - re-practice, proficiency consolidation - -re-practice, proficiency and consolidation -end of class teaching. The research instruments for this study included: i. Cognitive test scale, ii. Affective test scale, iii. Table tennis skill measurement scale, iv. Match performance measurement scale, and various other teaching instruments.

The notion of embedding competitive education within physical education (PE) frameworks has evolved over time. Jin Hongbao and Li Bo's research [1] elucidated the theoretical framework of seamlessly incorporating competition into secondary school PE. This research is framed within the backdrop of Jin Yule and Zhang Liang's analysis [2] on the broader evolution of curriculum theories post the new Chinese educational reforms. Notably, Ji Liu's exploration [3] of the psychological facets of PE highlighted the profound psychological influences of competitive strategies on students, indicating the need for careful integration. This sentiment resonates with Wang Xuefeng's pedagogical insights [4], which intertwine PE's physical benefits with its role in imparting critical life skills and values. Lastly, echoing these foundational works, Cheng Yanmei [5] critically reflects upon

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contemporary PE methods, suggesting an athletic education model as a forward-looking approach. These diverse studies coalesce to highlight the significance, challenges, and opportunities of positioning competitive education within the broader spectrum of PE[6].

2. Findings

The instruments used in this study included: i) a cognitive test scale, ii) an affective test scale, iii) a table tennis skills scale, iv) a game performance scale, and various other teaching tools. The four indicators, sports cognitive indicator, sports affective indicator, sports skill indicator, and sports game performance indicator, were analyzed sequentially[7].

The T-value of physical education cognitive indicators was -3.8 ($p < 0.05$), indicating that the physical education cognition of students in the experimental class after the experiment was significantly different from the control class, i.e., the effect of the competitive education model on students' physical education cognition was indigenous compared to the traditional teaching method. The main reasons for the differences in cognition between the two groups were found to be related to the long-time curriculum design, team groups, and the competition learning style. Longer sessions were designed to allow students to focus on one sport, which was very helpful for memory retention[8]. Formal games also give students a realistic learning situation to understand what is the spirit of table tennis, what is a foul, and what is a win. Compared to the traditional teaching model, it is difficult to constitute knowledge content without a relevant context and specific operational experience[9].

The T-value of the sports affective index was -12.37 ($p < 0.05$), indicating that the students' sports affective in the experimental class after the experiment was significantly different from the control class, i.e., the effect of the competitive education model on students' sports affective was significantly better than that of the traditional teaching method. The main reasons for the cognitive differences between the two groups were found to be related to the team learning approach and the design of the formal competition system[10-11]. The above-mentioned analysis indicated that the competitive education model enhances students' sports affective because team learning develops students' team consciousness; everyone has the opportunity to play on the field, which stimulates students' motivation and sense of honor, satisfies students' desire to perform, and creates a sense of gain in the student process; and satisfies students' personality development needs and interests. In the traditional teaching model, students have less emotional support and encouragement from team members, making learning an individual responsibility. In this environment, underachievers who do not have a strong motivation to learn are likely to give up learning[12].

The t-value of physical skills index was -0.062 ($p > 0.05$), indicating that there was no significant difference between the physical skills of students in the experimental class and the control class after the experiment, i.e., the effect of the competitive education model on students' physical skills was not significantly different from that of the traditional teaching method. Skill learning is a gradual and long-term practice process, and although students in the experimental class had many learning advantages over students in the control class during one experimental cycle, the advantages of the competitive education model could not be reflected in skill learning due to the limitations of the researcher's time and other limitations[13-14].

The t-value of the sports competition performance index was -13.315 ($p < 0.05$), indicating that the students' sports competition performance in the experimental class was significantly different from that in the control class after the experiment, i.e., the effect of the competitive education model on students' sports competition performance was significantly better than that of the traditional teaching method[15-16]. The main reasons for the cognitive differences between the two groups were found to be related to the team learning approach and the design of the formal tournament system[17]. Team learning enables students to help each other and improve with each other's strengths and weaknesses. The design of the formal competition system not only allows students to test their learning results through the competition, but also allows them to observe others through the competition to achieve the effect of self-reflection[18]. The effect of the competition is not only in the results, but also in the motivation, militancy, responsibility and honor of the students, and the improvement of the overall quality of the students also contributes to the improvement of the performance of the competition.

In summary, the implementation of the competitive education model in the teaching of the table tennis program in this school is a positive attempt, which has accumulated experience in the transformation of physical education teaching methods in this school, especially in the context of the implementation of the integration of sports and education, this initiative will help the national policy of

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integration of sports and education in this school to land and accumulate school-based experience.

3. Conclusion

3.1 The athletic education model can achieve better teaching effects

The athletic education model has unique teaching philosophy, teaching method system and implementation strategy, which will certainly achieve good teaching effect. In addition, in the process of implementation, the competitive education model follows the concept of large unit design, so that students have sufficient time to learn motor skills, master knowledge and develop physical fitness. The experimental design and data show that the competitive education model is able to improve students' sport cognition, sport emotions, sport skills, and game performance, thus achieving good teaching results and further demonstrating the feasibility and operability of using the competitive education model in university table tennis classes.

3.2 The competitive education model is more suitable for developing students' implicit comprehensive abilities

Compared with traditional physical education, which focuses on students' motor skills, the competitive education model focuses on students' comprehensive development, especially for cultivating students' implicit comprehensive abilities such as team consciousness, rule consciousness, fighting consciousness, and initiative consciousness. The analysis of the pre and post test data and comparative data of the experimental classes shows that the competitive education model has a significant role in the process of developing students' implicit comprehensive abilities.

3.3 The structure of the competitive education model is more reasonable and the pedagogical system is more optimized in terms of structure.

Firstly, the competitive education model really realizes the form of large teaching units. Although this experiment is limited by the experimental time, the effectiveness of the competitive education model is still remarkable from the experimental results. Therefore, theoretically, the competitive education model can span several teaching units or even several academic years. Second, the competitive education model is divided into three stages: before, during and after the competition, which is systematic in teaching design concept and can provide a reference for the requirement of "modular teaching. Thirdly, the competitive education model pays more attention to contextual teaching and emphasizes technology and competition respectively, which makes teaching and learning more focused. In terms of pedagogical system. The teaching methods used in the competitive education model include cooperative learning, contextual teaching, partner learning, competition, etc. The combination of these methods forms a complete and effective pedagogical system.

3.4 The competitive education model helps accumulate school-based experience in the implementation of physical education integration

The purpose of sports-education integration is to nurture people, and the goal is to promote young people's enjoyment, physical fitness, personality and will, while playing the fundamental role of school sports in improving the level of sports competition. Based on this, the implementation of the competitive education model can promote the implementation of the national policy of integration of sports and education in our school, and according to the results of this experiment, the competitive education model has the value and significance to be promoted in our school. In the future, according to the actual situation of our school, we will integrate local knowledge and school-based knowledge to accumulate and broaden the school-based experience in the implementation of the integration of sports and education.

4. Recommendations

4.1 Continue to promote competitive education model teaching methods within the school

The experience of this teaching experiment shows that competitive education mode has the characteristics of ideological and political education in table tennis course. Summarizing experience,

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we can try to apply it to other projects, and then share and discuss it in the whole school. In this chapter, we propose establishing a sports ideological and political curriculum research group within the scope of competitive education. This group will actively encourage and demonstrate participation in various sports events across the entire school. Moreover, it will continuously gather and summarize practical experiences to ensure alignment with the physical education teaching practices of our school [19-20].

4.2 Combine the actual situation of our school, perfect the competitive education mode

In light of the progression of physical education at our school, we aim to develop a unique competitive education model tailored to our specific characteristics. This model will encompass the implementation of an expanded range of elective courses. Such expansion will enable students to participate in cross-grade elective courses throughout the school, seamlessly integrating these offerings with the competitive education model [21]. To optimize this approach, we will refine our design concepts, making effective use of both in-class and extracurricular time. Within the competitive education framework, we plan to implement small class teaching during scheduled class times, and large class teaching during extracurricular periods.

4.3 Actively respond to national policies and promote the implementation of political thinking and education in physical education curriculum

In the process of physical education teaching, no matter what kind of teaching mode is implemented, it is necessary to make clear the fundamental problems of what kind of people school physical education should cultivate, for whom and how[22]. To carry out competitive education mode in the whole school, we should actively respond to the national policy, promote the integration of sports and education, take promoting teenagers 'enjoyment of sports, strengthening physique, carrying forward personality and will training as the goal, jointly build the ideological and political function of physical education curriculum in educating people, facilitate the implementation of various educational policies such as curriculum construction, and cultivate more excellent sports talents for the construction of socialist sports cause with Chinese characteristics[23].

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