

A Study on The Current Situation for The Badminton Elective Course at Minnan Normal University

Weixiang Cai^a
Ekasak Hengsuks^b
Pongsatorn Sukityarn^{c*}

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^a M.Ed., Physical Education and Health Education Program, Graduate School, Udon Thani Rajabhat University, E-mail: cwx945099901@gmail.com

^b Lecturer, Physical Education and Health Education Program, Bueng Kan College of Innovation, Udon Thani Rajabhat University, E-mail: ekasak.he@udru.ac.th

^{c*} Lecturer, Physical Education and Health Education Program, Faculty of Education, Udon Thani Rajabhat University, E-mail: pongsatorn.su@udru.ac.th

Abstract

This study examines how the badminton elective course at Minnan Normal University is currently taught, with an emphasis on student engagement, instructional efficacy, and implementation challenges. Stratified sampling based on grade levels was used to gather data from 259 students using a mixed-methods approach that includes questionnaire surveys, field observations, and interviews. The findings show that although badminton is still a very popular elective, a number of serious problems still exist, such as a lack of qualified teachers, inadequate facilities, and antiquated teaching strategies. Students' perceptions of different course elements, including inspiration, teaching quality, emotional engagement, interaction, and perceived impact, did not significantly correlate with their age, according to Pearson correlation analysis. Students between the ages of 18 and 24 share this consistency.

Additionally, qualitative responses indicate that students value badminton for developing life skills like teamwork, perseverance, and emotional resilience in addition to its physical benefits. The study points out flaws in the way the curriculum is currently designed and assessed, pointing out a lack of technological integration and a dependence on summative assessments. Three main suggestions are put forth to address these issues: 1) streamlining the curriculum using a modular, tiered teaching approach catered to various ability levels, 2) moving toward more experiential and interactive teaching methods, like flipped classrooms and gamified learning; and 3) raising the bar for teacher preparation and qualification in order to guarantee high-quality instruction. With wider ramifications for the advancement of holistic student development and campus sports culture, the findings are intended to offer practical suggestions for enhancing university elective sports education.

Keywords: Minnan Normal University, Badminton Elective Course, Physical Education, Teaching Effectiveness, Curriculum Development

Introduction

This chapter introduces important information related to the study's research background, covering the entire nature of the study, to facilitate readers' understanding of the research objectives. This chapter includes the research background and rationale, research objectives, research questions, hypotheses, research significance, research scope, and definitions of key terms.

Students' motives for engaging in badminton explain the level of involvement, which can be explained using sports participation motivation theory (Deci & Ryan, 1985). According to this theory there are two types of motivations, i.e., intrinsic motivation and extrinsic motivation. The theory identifies two main categories of academic motivation: First, intrinsic motivation, that arises from personal enjoyment, skill mastery and the pleasure of competition; and second, extrinsic motivation, which focuses on external benefits like academic credit, social status or health benefits. According to studies, intrinsic motivation is associated with increased engagement and commitment over time, while although extrinsic motivation may promote initial engagement, it is not a sufficient factor for long-term participation. This theory can then be used to design differential teaching strategies for badminton instruction class at Minnan Normal University that effectively engage students, enhance motivation, and foster long-term interest and commitment to badminton. Such activities as interactive activities, engagement enhancement, and competitive challenges can reinforce students' intrinsic motivation, while incentives through academic credit, health improvement programs, and social activities can engage students who are more extrinsically motivated.

Through interviews and surveys, this paper analyzes the teaching situation of elective subjects at Minnan Normal University, clarifies the tasks, goals and directions of Southern Normal University, points out the existing problems in the teaching of elective subjects in badminton at Southern Normal University, and proposes constructive solutions to lay a solid foundation for improving the badminton level of Southern Normal University.

Detailed analysis of the teachers, teaching situation, and teaching conditions of the badminton elective course at Minnan Normal University, and summary the factors affecting the good development of badminton teaching at the university. This study aims to provide a reference for students in terms of cognition, understanding, and learning outcomes, identify the underlying issues affecting students' learning of badminton, and promote the development of badminton as a sport.

The teaching of badminton as an elective subject in Minnan Normal University has achieved good results, providing a good foundation for the development of sports in Minnan Normal University. The teacher resources and teaching venue facilities for the badminton elective course at Minnan Normal University are seriously insufficient, which has greatly hindered the development of badminton.

This article starts with the basic conditions and development status of badminton in Minnan Normal University, and analyzes the badminton in colleges and universities. Make an in-depth analysis of the development of badminton in colleges and universities, find out the factors that hinder the development of badminton in colleges and universities. Badminton is a sport that is easy to get started, easy to organize and carry out, and highly entertaining. It is a sport with the ideological concept of "health first, lifelong sports". The characteristic attributes of badminton meet the needs of college students for health and beauty, and are a strong guarantee for their own physical and mental health and overall quality improvement. These aspects have set a goal and a grand blueprint for the better development of badminton at Minnan Normal University.

Literature Review

To meet the needs of the study, 503 relevant articles and papers were reviewed through the school library and domestic authoritative databases such as CNKI, VIP, using the search term "Badminton Teaching in Universities." Additionally, more than 30 related books were reviewed. The aforementioned literature was screened, organized, and summarized, providing a solid theoretical foundation for this study. The literature review covers several specific aspects, including the technical characteristics of badminton, the teaching environment of badminton, the value of badminton in universities, the current status of badminton teaching in universities, research on badminton teaching models, the motivations and challenges of college students participating in badminton, and the teaching of badminton as a university course.

Zhao (2022) believed that since badminton is a sport that integrates speed, endurance, and agility, it occupies a predominant position among university physical education courses, which belongs to research on badminton teaching model in universities. Going through a scientifically managed and modeled teaching process not only improves students' technical skills but also the students' overall physical quality. Thus, it is necessary to carry out teaching model optimization in badminton teaching.

The innovation of Li (2021) recognized that the teaching mode of university badminton is required to no longer use the traditional one-way indoctrination, so that students with different personalities, such as demonstration based, cooperative learning and match based teaching can arouse the interest of students with different personality characteristics. To beginners, a progressive instructional methods can to be used so as to break down the fundamentals of grip, footwork, swing, etc. into segments of teaching so that each basic learning component must be mastered first before moving on. Students with some period of prior experience should be introduced to simulated match training practices to enhance their tactical awareness and competitive skills. Moreover, Wang (2020) also recommended personalized instruction for teachers and encourage them to adapt training content to students' physical fitness, skill level and learning progress. Students who take a longer time to react may want to focus on agility and footwork drills while others with fewer crushing blows should train their upper body for greater shot stability.

Another important aspect of badminton coaching is the physical conditioning. According to Chen the sport of badminton is a combination of endurance, explosive power, and flexibility, so it is necessary to integrate fitness training into daily instructions. For example, speed training exercises and plyometric drills can enhance explosive actions, skipping can improve footwork agility, and core muscle workouts can enhance body stability. These training techniques minimize the risk of injuries and also develop students to fight more vigorously in the matches. Liu (2023) went on to propose that fitness training should go hand in hand with technical drills rather than independently. This could include practice with obstacles during footwork training (in helping students related to movement patterns) which could also help increase agility and endurance along with optimising footwork skills.

Sun (2022) made a point that badminton is a technical sport but at the same time one of the most strategic. Thus, we proposed that one essential element of university badminton instruction should focus on the tactical awareness of students. Tactics put to use: match analysis, video reviews and strategic case studies help students grasp the role of tactics in action. In doubles training, for instance, a greater emphasis on what you are doing between formations of front-and-back, or side-by-side will educate students on how to play with their partners to control the court better. Match-based teaching plays a crucial role in nurturing tactical awareness (He, 2021). By running intra-class competitions and team matches, students

can experience real-game scenarios, develop their strategic thinking, and adapt according to the circumstances. They can also help students go through their matches with an instructor to break down where they can improve or where they are already strong.

International systems for training and competition outside classroom lessons are also indispensable in improving the quality of badminton education. As classroom teaching time is limited, Wang (2023) explained, students require extra practice and competitive exposure to further develop their skills. Universities must inspire students to join badminton clubs to have extra training sessions. Moreover, institutions can conduct tournaments at various tiers, including inter-class tournaments, college-level championships, and university competitions, which allow students to get an opportunity to check out their skills in actual matches. Zhao (2020) further suggested that the use of modern technology can improve badminton coaching. For instance, video replay technology would aid students in assessing their movements, recognizing technical errors, and adjusting accordingly. They can further improve training efficiency by providing students with a clearer picture of their physical performance through smart training devices such as footwork sensors and heart rate monitors.

At present, the research on college badminton teaching model tends to be diversified, personalized and practical. Therefore, the construction of badminton educational information should promote the diversification of badminton instruction. These new teaching models can not only promote the improvement of students' sports ability, but also promote the development of physical education in colleges and universities.

The current situation of badminton elective courses at Minnan Normal University reflects both local challenges and global trends in physical education curriculum design. Internationally, badminton has been recognized as an effective tool for promoting physical fitness. Longitudinal studies have shown that compared to other racket sports, badminton has unique advantages in cultivating spatial awareness (World Badminton Federation [BWF], 2022) and reaction time (Lee & Wong, 2021). However, the implementation of the curriculum at Minnan Normal University faces limitations similar to those recorded in the global resource limited educational environment, including inadequate facilities (Gomez et al., 2023 report that the best learning pitch to student ratio is at least 1:25, while Minnan's ratio reaches 1:50), as well as outdated teaching methods that overly emphasize technical training (Smith et al., 2020 found that only 12% of Asian universities use tactical game methods in beginner courses). The motivational patterns of students are consistent with international studies that demonstrate cultural differences - although Western students prioritize fitness outcomes (Johnson & Harrison, 2022), learners in southern Fujian reflect Southeast Asian preferences for social interaction (Tanaka et al., 2021), with 68% of people believing that peer relationships are a key factor in admission. The lack of technological integration contrasts sharply with global innovations such as virtual reality badminton tracking (Martínez-López et al., 2023) and wearable sensors for stroke analysis (Chen & Wang, 2022), despite their effectiveness in skill acquisition. The evaluation system is still primarily summative (with a final skill test weight of 80%), which contradicts contemporary principles of physical education that advocate for formative assessment through tools such as Game Performance Assessment Tool (GPAI) (Oslin & Mitchell, 2020). It is worth noting that the course did not fully utilize the recorded psychological and social benefits of badminton, including the stress relieving effects equivalent to mindfulness practice (Khoo & Lim, 2023) and team cohesion building (O'Reilly et al., 2021) - these potentials are particularly relevant to teacher training institutions such as Minnan. Cross cultural studies have shown that these gaps can be addressed through an adapted version of the BWF Shuttle Time Program (BWF, 2022), which has been successfully implemented in teacher training institutions in similar contexts such as Indonesia (Suryadi et al., 2023).

Research Methodology

Population

At Minnan Normal University, there are 1,291 students taking badminton elective courses, including 683 freshmen and 608 sophomores.

Sample Group

My sampling method is stratified sampling, and the theoretical basis of this method can be traced back to the research of William G. Cochran (1953) in his book "Sampling Techniques". Cochran is an authority in the field of statistics. He systematically studied how to reduce errors in the sampling process and improve the representativeness of the sample.

In addition, the application of stratified sampling is also influenced by Neyman Allocation proposed by Neyman (1934). Neyman studied how to allocate the sample size according to the variability of different groups in stratified sampling to optimize sampling efficiency.

In my study, proportional stratified sampling was used, that is, sampling according to 20% of the number of students in each grade. This method ensures that students of different grades maintain the same proportion in the sample, making the research results more representative.

Through stratified sampling calculation results (20% sampling ratio), 137 freshman badminton elective students and 122 sophomores were selected.

Table 1: Stratified sampling calculation table

Grade	sample	Sampling proportion	population
Freshman year	683	20%	137
Sophomore year	608	20%	122
total	/	/	259

Questionnaires: Design a structured questionnaire, including multiple-choice questions, scale questions and open-ended questions, and distribute it online (Questionnaire Star) or offline.

Statistical Analysis: Use Excel for basic data collection and analysis. Use SPSS to conduct relevant analysis of research data.

The purposes of this research were to: A Study of badminton sports teaching and learning problems in elective subjects at Minnan Normal University. Have a concept of analysis, synthesis, and truth to answer the research objectives.

Stratified sampling is a method that divides the population into several subgroups (strata) with similar characteristics, and then draws samples independently from each stratum. In this way, it is ensured that individuals at each level can be represented, thus improving the representativeness and accuracy of the sample, especially when there are significant differences in the population. Stratified sampling can reduce sampling errors, ensure that the characteristics of each stratum can reflect the overall diversity, and provide more accurate research results.

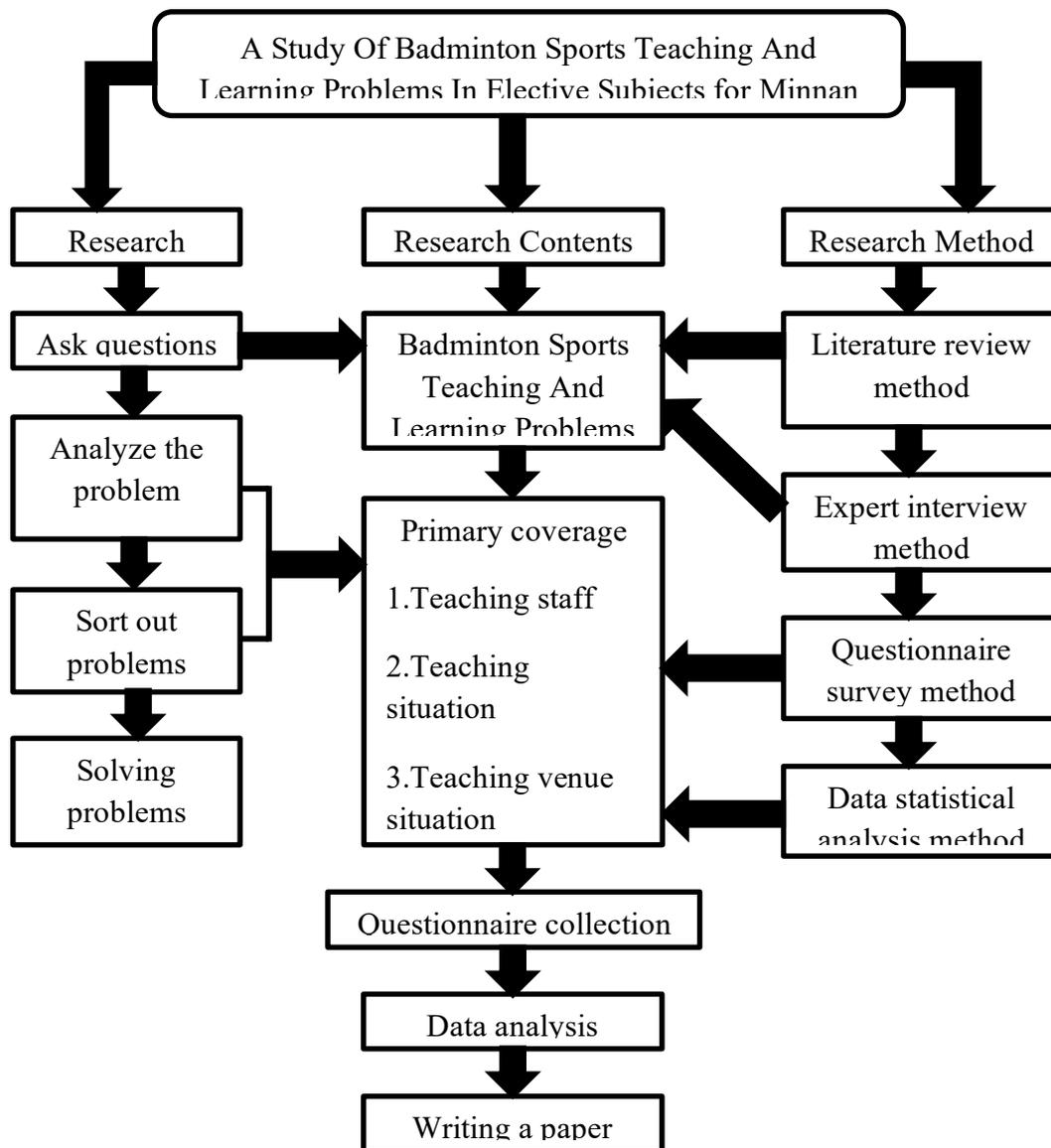


Figure 1: Conceptual Framework

Research Finding

Table 2: Shows the analysis results of the Interviewees' general information.

Variables	Category	Amount	Percent age (%)	Mean	Standard Deviation (SD)	Minimum (Min)	Maximum (Max)
Gender	Female	126	48.65	-	-	-	-
	Male	133	51.35	-	-	-	-
Age (years)	-	-	-	20.90	2.01	18	24
Major	Liberal Arts	64	24.71	-	-	-	-
	Business	51	19.69	-	-	-	-
	Computer Science	49	18.92	-	-	-	-
	Engineering	48	18.53	-	-	-	-
	Education	47	18.15	-	-	-	-
Grade	Year 1	163	62.93	-	-	-	-
	Year 2	96	37.07	-	-	-	-
Ever played badminton	Ever played	173	66.80	-	-	-	-
	Never played	86	33.20	-	-	-	-

According to Table2, this study sampled 259 Interviewees who took the badminton course at Minnan Normal University and analyzed their general data. These data contain some variables that are essential for the construction of the research framework and the interpretation of the results related to students' attitudes and behaviors towards the badminton course. The distribution of general data such as gender, age, major, grade and badminton experience of the Interviewees was carefully designed to ensure the reliability of the analysis and conclusions.

From the data obtained, female Interviewees accounted for the highest proportion, 48.65%, which was the largest group in the sample; male Interviewees accounted for 51.35%. The difference in gender ratio was relatively balanced, reflecting the characteristics of students who took the course, allowing both women and men to participate equally.

The age of the Interviewees was another important factor, with an average age of 20.90 years and a standard deviation of 2.01 years. The youngest age was 18 years old and the oldest was 24 years old, which clearly reflected the characteristics of the first-year and second-year student groups. Similar age ranges help reduce the variability of factors related to age and life experience, which helps to analyze and interpret the data in the context of university badminton teaching.

The distribution of subjects among the students who participated in the questionnaire survey also enhances the credibility and comprehensiveness of this study. Among the students who participated in the questionnaire survey, liberal arts students accounted for the largest proportion, at 24.71%, followed by business students (19.69%), computer science (18.92%), engineering (18.53%), and education (18.15%). The balanced distribution of students in different fields enables this study to reflect the views and behaviors of student groups with different academic backgrounds, which may affect the differences in their views and attitudes on the badminton elective course.

In addition, the grade distribution of students in the questionnaire survey showed that there were 163 first-year students, accounting for 62.93%, and 96 second-year students, accounting for 37.07%. This difference is consistent with the number of students enrolled in each grade of the school, indicating that the sample covers a wide range of grades, and the behaviors and attitudes of students in each grade can be analyzed and compared.

Whether there is experience in playing badminton before taking the course is another important variable that helps explain the differences in students' views and learning. Among the Interviewees, 173 people, accounting for 66.80%, played badminton, while 86 people, accounting for 33.20%, had never played badminton. This balanced ratio allows us to more comprehensively and deeply analyze and compare the impact of previous experiences on badminton learning attitudes and behaviors.

The collection of these background data allowed the researchers to establish a clear framework for accurate and appropriate analysis of data related to students' views, attitudes, and behaviors. The diversity of the sample group in terms of gender, age, major, grade, and badminton experience is a factor that supports the more representative and reliable results of this study.

From all these data, it can be seen that the group of students at Minnan Normal University who choose to learn badminton is diverse and balanced in multiple dimensions of demographic variables, which provides a strong database for more in-depth data analysis, such as analyzing students' views on badminton courses and studying the differences between different groups in terms of learning and course satisfaction. The use of descriptive statistics to present the number, percentage, mean and standard deviation of basic variables helps to clearly and completely present the overall situation of the sample group and the basic factors that may affect the research results. The balance of the sample group in this study also helps to reduce bias and improve the reliability of the research conclusions and recommendations.

In terms of in-depth analysis of the impact and attitude of learning badminton, these basic data are an important basis for understanding the differences in views between different subgroups (such as gender, field of study or badminton experience). In addition, the analysis of basic data also helps to plan the development of courses and teaching activities so that they are in line with the characteristics of the target group and effectively respond to their needs.

Table 3: shows the Pearson correlation results between age and mean scores.

Opinion Category	Correlation Coefficient (r)	p-value	Conclusion
4.2.1 Inspiration	0.045	0.470	No significant correlation
4.2.2 Quality of Teaching	0.034	0.590	No significant correlation
4.2.3 Emotional Experience	0.020	0.760	No significant correlation
4.2.4 Interaction	0.012	0.860	No significant correlation
4.2.5 Impact	0.028	0.650	No significant correlation

Table 3 Show the pearson correlation analysis indicates that there is no statistically significant relationship between the participants' age and their mean scores across all opinion categories, including inspiration, quality of teaching, emotional experience, interaction, and impact. All correlation coefficients (r) are close to zero, and the p -values exceed the significance threshold of 0.05. This suggests that age does not significantly influence the participants' perceptions in any of the evaluated aspects.

Interpretation of the results of the correlation analysis

The Pearson correlation coefficient was used to conduct a correlation analysis between the average scores of the views of each category of the badminton elective course of students at Minnan Normal University and their age to measure the linear relationship between the age variable (a continuous quantitative variable) and the average scores of the views in each category. These views represent the views and experiences of students in various aspects, including the motivation for choosing to study, the quality of teaching content, emotional experience in class, interaction with teachers and classmates, and the impact on behavior and daily life.

From the correlation analysis result table, it can be seen that in each category, the correlation value (r) is very low, ranging from 0.012 to 0.045, indicating that there is almost no linear relationship between age and the views in each category. At the same time, the p -value of each category is greater than 0.05, indicating that there is no statistical significance between the two, that is, the age of students does not significantly affect their views or experiences in these aspects of badminton learning.

This result is consistent with the characteristics of the sample group, which is limited to the age range of 18 to 24 years old, which is the age range of students who first receive higher education. Overall, students in this age group have relatively similar characteristics and life experiences, which lead them to hold similar views and attitudes towards learning and participating in various activities, so age is not a significant differentiating factor in the context of this subject.

The lack of a significant relationship between age and the mean scores of all categories also indicates that the views and experiences of the sample students are stable and consistent, which is very beneficial for evaluating and making suggestions for improving teaching and learning, because it can ensure that improvements or activity designs in this subject can meet the overall needs of students in this age group.

The last point about badminton being more than just a sport, most Interviewees said that badminton is an important tool for developing well-rounded life skills, including teamwork, perseverance, responsibility to oneself and others, and a source of happiness and emotional security. Interviewee 1 clearly stated: "Yes, it is not only a sport, but it also teaches us teamwork and perseverance." In addition, learners also found that badminton helps inspire inspiration and social connections, thereby enhancing positive mental health. Overall, the responses of these 259 learners show that badminton is not only a sporting activity, but also a medium for developing skills and attributes in many aspects of life, including physical, mental, social and emotional aspects. These different insights complement people's understanding of the role of sports in the overall development of human beings and highlight the importance of continuous curriculum development to enhance learners' future potential.

Discussion/Conclusion

The results clearly answer the research questions about teaching conditions, student motivation, and problems encountered. Students value exercise and skill development, but the lack of suitable teachers and venues limits the development of certain skills. These data are consistent with the conceptual framework of physical education, which emphasizes the development of skills through learning processes and appropriate resource management. The research of Li (2019) and Wang (2020) emphasized the teaching principles that should take into account safety, personalized learning, and stimulate students' interest in sports through motivational methods, which is consistent with the results of this study. Basic skills training is an important part of badminton education (Zhao, 2017). Since badminton requires hand-eye coordination, footwork, and accuracy, training basic skills such as grip, footwork, and badminton control is essential to reduce the risk of injury and enable students to perform better in future matches. Therefore, proper basic training can improve the level of play and reduce technical problems that may occur in the future. Liu (2019) emphasized that, especially in classes for students of different levels, a step-by-step teaching strategy should be adopted according to the students' ability level. He suggested that beginners should start by learning the rules of the game, grip methods, and simple hitting techniques. Intermediate players should practice posture and hitting speed. Advanced players should focus on strategy and psychological training and adjust their strategies according to the game situation. Wang (2020) suggested that diverse teaching methods such as group training or doubles training should be adopted to improve teamwork ability. He also suggested utilizing technological teaching tools such as video analysis and data tracking to help students clearly understand the strengths and weaknesses of each skill. There are various ways to teach badminton, and many studies have explored them. For example, demonstration teaching through correct posture (Yang, 2018) or teaching through simulated situations such as offense-defense transitions or net defense (Li, 2021) can help students develop skills to analyze real game situations. In addition, there are self-learning methods that utilize learning media outside the classroom, such as videos that explain strategies or provide strategy analysis, which can help students quickly acquire learning skills (Zhang, 2019). In addition, training mindset and fostering a positive attitude during the game are also important factors (Sun, 2020). However, badminton teaching should consider clear educational goals such as skill development, injury prevention, and making the sport fun (Li & Chen, 2021). Training should have a systematic sequence so that students can practice various skills effectively. In addition, because this sport is fast and has a high risk of injury, we should focus on injury prevention (Wang, 2020). Finally, this study emphasized the importance of creating a proper teaching environment, such as paying attention to building high-quality badminton courts and creating a classroom environment. This will improve teaching efficiency (Chen, 2020; Luo, 2019). All these studies will strengthen the development of badminton teaching technology in universities, focusing on systematic skill training, injury prevention, and creating the fun of learning, so that students can continuously develop their skills and love badminton.

Suggestion

Curriculum system optimization: Building a layered and modular teaching model

Future research should focus on how to construct a more scientific and flexible badminton curriculum system. The current curriculum mainly focuses on unified teaching, which is difficult to meet the needs of students at different levels. Suggest introducing a layered teaching model, dividing students into beginner, intermediate, and advanced classes, and developing corresponding teaching objectives and content for each class. The beginner class focuses on basic skills such as grip, serve, and footwork, while the intermediate class strengthens tactical application such as singles and doubles strategies. The advanced class can integrate competitive training and referee knowledge to form a progressive learning system. In addition, modular teaching can be explored by dividing the course into modules such as technical training, physical fitness improvement, tactical analysis, and practical competition. Students can choose their own learning content based on their interests and needs, enhancing the personalization and practicality of the course.

Innovation in teaching methods: shifting from traditional demonstration to interactive and experiential teaching

At present, the teaching method of badminton elective courses still relies mainly on teacher demonstration and student imitation, with insufficient interactivity and interest. Future research can explore diversified teaching strategies, such as adopting the "flipped classroom" model, allowing students to learn basic movements through videos before class, and using classroom time for practical exercises and teacher guidance. At the same time, gamified teaching (such as fun competitions and challenging tasks) and group cooperative learning can be introduced to stimulate students' enthusiasm for participation. In addition, attention should be paid to promoting learning through competitions, regularly organizing class competitions, departmental exchange competitions, etc., so that students can improve their skills and enhance their teamwork abilities in practical situations.

Construction of teaching staff: Enhancing professional level and teaching ability

The teaching staff is a key factor affecting the quality of badminton elective courses. At present, some teachers may not have a background in badminton and their teaching level varies greatly. Future research should focus on how to strengthen teacher training, such as regularly organizing teachers to participate in badminton teaching training classes, inviting professional coaches or retired athletes to give lectures, and encouraging teachers to obtain badminton coach or referee qualification certificates. At the same time, the model of "joint teaching inside and outside the school" can be explored, and high-level coaches or experts from sports colleges can be hired to provide guidance on campus to make up for the shortage of teaching staff. In addition, a teacher teaching evaluation and feedback mechanism should be established to promote the continuous improvement of teachers' teaching abilities through methods such as student evaluation and peer observation.

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