



Development of An Integrated Model on Sports and Education to Enhance the Competencies of Sports Schools Students in Guangdong Province, People's Republic of China

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Abstract

Background and Aims: The sports school system has long been the main channel for developing sports-related talent in China. However, because of the imbalance between academic learning and sports training, only a small proportion of students from these sports schools show enough competency in their careers. This research aims to build an integrated model of sports and education to enhance the competencies of sports school students.

Methodology: (1) For data collection, this research mainly used the questionnaire method. A stratified random sampling method was used to pick 40 sports schools in different regions out of a total of 149 sports schools in Guangdong, China. For each school, related parties such as students, teachers, and school administrators were randomly chosen to answer the questionnaire from different perspectives. (2) For data analysis and model construction, descriptive statistics including mean and standard deviation, median, and interquartile range were used to analyze the data. (3) To refine the model, the Delphi method was used to consult experts in education and sports. After three rounds of Delphi, the final model was constructed, which both considered the information from questionnaires and the advice from experts. The final model was confirmed through the Focus Group method to further show its practicality.

Results: The research identified significant factors impacting student-athlete performance, including specialized academic planning, after-school tutoring, and the integration of sports and education administration. The study revealed that a tailored approach to academic and athletic training, along with coordinated management between sports and education bureaus is essential for enhancing student competencies.

Conclusion: The developed integrated model offers a comprehensive framework for sports schools to improve student outcomes in both academic and sports fields. By prioritizing both academic and athletic development, the model supports the sustainable growth of sports schools and the preparation of well-rounded student-athletes for future challenges.

Keywords: Integrated Model; Sports and Education; Sports Schools Students

Introduction

The sports school system in Guangdong Province, China, has long been a critical pipeline for developing competitive sports talent. However, these institutions are currently grappling with a multitude of challenges that hinder their ability to provide a balanced and comprehensive education to student-athletes. Key issues include an overemphasis on athletic performance at the expense of academic achievement, a decline in student enrollment numbers, financial constraints, and an inadequate preparation process for students aiming for higher education or professional sports careers (Dai, 2010; Ma and Zhai, 2016). These challenges have prompted a critical examination of the existing model and a call for reform.

This research proposal aims to address these issues by developing an integrated model that combines sports and education. The model seeks to create a holistic framework for the development of student-athletes, enabling them to excel not only in their sports pursuits but also academically. The study is particularly relevant in the context of recent policy changes in China that emphasize the integration of sports and education as a means to foster the healthy development of young people and to strengthen the foundation for competitive sports talent development (LI, 2020; Yang, 2021).

The expected outcomes of this research are strategic recommendations tailored for implementation in Guangdong's sports schools, with the potential for adaptation to other regions within China. The study focuses on critical areas such as resource allocation, training methodologies, coordination mechanisms between sports and educational entities, and the development of an evaluation system that can effectively measure the success of the integrated model (Pestano, 2021; Djamel-Mokrani Djamel, 2020).





In summary, this research endeavors to contribute significantly to the discourse on sports and education integration. It aims to provide a sustainable model for sports schools that ensures the nurturing of well-rounded individuals, Improvement of all aspects of the competence of students in sports schools, and the capability of achieving excellence in both academic and athletic realms, promoting the development of competitive sports in China, aligning with the evolving goals of sports education in China (Lin, 2023).

Objectives

To develop an integrated model of sports and education to enhance the competencies of sports school students in Guangdong province in China.

Literature Review

Sports schools have been identified as crucial institutions for developing competitive sports talents in China. They are designed to provide specialized training to young athletes while also delivering a standard academic curriculum. However, the literature indicates that these schools have historically prioritized athletic performance over academic achievement, leading to an imbalance in the overall development of student-athletes (Dai, 2010; Wang, 2019; Sun and Jiang, 2016; Pei, 2015).

The evolution of sports schools has been marked by challenges such as declining enrollment, insufficient funding, and inadequate facilities, which have affected the quality of training and education provided (Ma and Zhai, 2016). Furthermore, the literature suggests that the traditional focus on athletic performance has resulted in a neglect of the cultural education of student-athletes, limiting their prospects beyond sports (Liu, 2020).

The integration of sports and education has emerged as a strategic response to the challenges faced by sports schools. This policy initiative aims to combine the training of competitive sports talents with the national education system, thereby promoting the healthy development of young people and enhancing their participation in sports and physical activities (LI, 2020; Yang, 2021).

The literature on this topic highlights the importance of a balanced approach to sports and education, emphasizing the need for sports schools to adapt their curricula and training methods to foster the holistic development of student-athletes. This includes the introduction of new policies and initiatives that encourage collaboration between sports and educational authorities, as well as the development of new models for talent cultivation (Zhou, 2021).

The literature on the competencies of sports school students underscores the importance of a well-rounded education that encompasses both academic and athletic excellence. Researchers have called for a reevaluation of the curriculum structure and educational programs in sports schools to identify areas for improvement and to ensure that students are equipped with the necessary skills and knowledge to succeed in both domains (Lin, 2023).

This includes the development of physical fitness, technical skills related to their chosen sport, tactical understanding, mental resilience, teamwork, and sportsmanship, as well as academic performance, study habits, and time management skills (Pestano, 2021). The literature also emphasizes the need for sports schools to establish robust evaluation systems to assess the effectiveness of their educational and training programs (Djamel-Mokrani Djamel, 2020).

The cultivation of reserve talents for competitive sports is a critical aspect of sports school education. The literature in this area highlights the importance of early identification and development of athletic potential, as well as the provision of a strong educational foundation to ensure that young athletes are prepared for a variety of future pathways, including higher education and professional sports careers (Liu, 2020).

Research has also emphasized the need for sports schools to adopt more scientific and innovative training methods, improve the quality of coaching, and enhance the support systems available to student-athletes. This includes the development of personalized training plans, the use of technology in training

and evaluation, and the provision of psychological and nutritional support to help students reach their full potential (Ma and Zhai, 2016).

Conceptual Framework

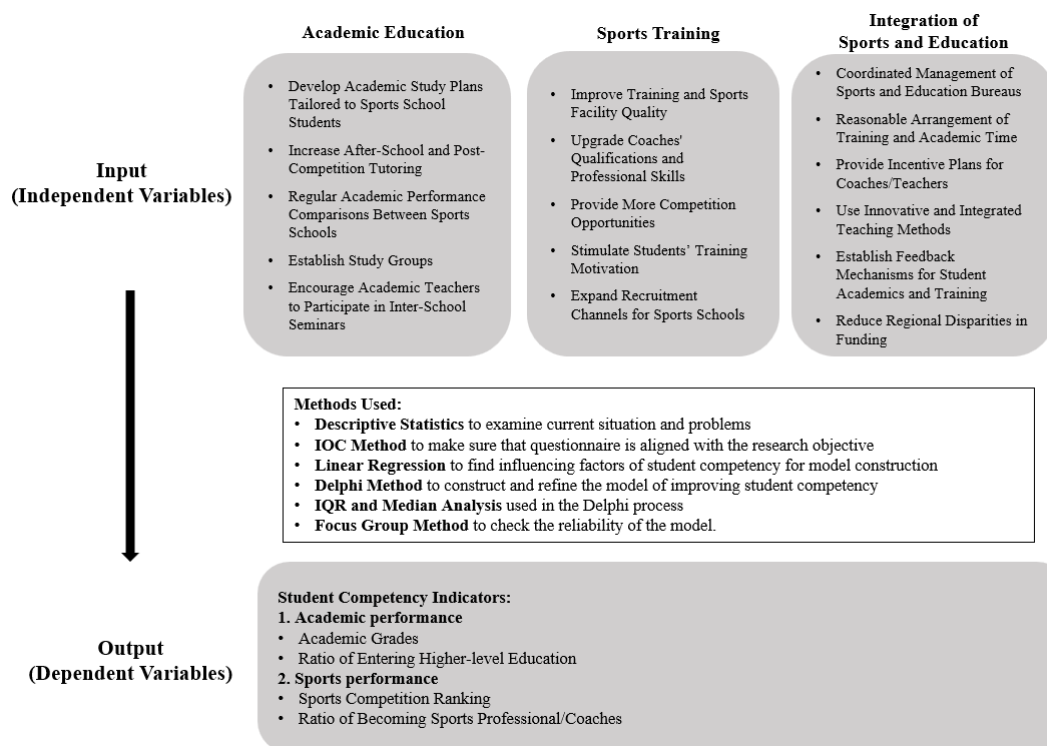


Figure 1 Conceptual framework

Methodology

The research was a mixed methods research.

1. Research Tools

The research tools utilized in this study are mainly a questionnaire for students, a questionnaire for administrators and coaches, and an interviewing form for experts.

2. Population and Sample

Population

The population of this research was 149 sports schools in Guangdong Province.

Sample

40 sports schools were selected as a sample group through a stratified random sampling method according to the region. After that, to identify individual participants in each sports school, through a stratified random sampling method, participants were divided into 3 groups as follows: Group I: 40 sports school administrators; Group II: 200 coaches, 120 academic teachers, and 40 student parents; and Group III: 800 students.

Research Participation

Experts for Questionnaire design: 22 experts including sports education leaders, curriculum developers, and experienced coaches, were purposefully chosen for their expertise in sports and education integration for developing the questionnaire through interviews.

Experts for IOC: A selection of 5 experts is chosen for the IOC test of the consistency of the questionnaire.

Experts for Delphi Method: A panel of 19 experts with diverse backgrounds in sports administration, education, and student development is selected to participate in the Delphi process, aiming to refine and validate the integration model.

Experts for Model Validation: A group of 9 experts, including renowned figures in sports education and school management, is chosen to critically evaluate and confirm the practicality of the developed model.

3. Data Collection

(1) Questionnaire Design and Consistency Test: Opinions were collected from a selection of 22 experts, including sports education leaders, curriculum developers, and experienced coaches, to design questionnaires. IOC scores were collected from 5 experts to check the consistency of the questionnaires.

(2) Questionnaire Distribution: Questionnaires were distributed to the sample of 800 students, 200 coaches, 120 academic teachers, 40 student parents, and 40 sports school administrators.

(3) Delphi Process for Model Refinement: A three-round Delphi was conducted to improve the preliminary model, with an open-ended first round, and close-ended second and third rounds. Responses are collected from a panel of 19 experts.

(4) Final Validation of the Model: Opinions are collected from a focus group of 9 experts to critically evaluate and confirm the practicality of the developed model.

4. Data Analysis

The data analysis involves the following statistical methods and tools:

(1) IOC Test: Employed to evaluate the content validity of the questionnaires, with high IOC values indicating strong alignment between the questionnaire items and the research objectives.

(2) Descriptive Statistics: After questionnaires were collected, means, standard deviations, and frequency distributions were calculated to understand the central tendencies and variations in the data.

(3) Simple linear regression: Linear regression method was used to find potential factors that influence the competency of students, to construct a preliminary model.

(4) Median and IQR for Delphi process: A three-round Delphi was conducted to refine the model. During the Delphi process, Median and IQR were used to analyze the Delphi consensus data, with criteria set for median ≥ 3.50 and IQR ≤ 1.50 to ensure robust consensus.

Results

1. To Investigate the Current Status of Sports Schools and Students in Guangdong Province

This analysis draws from the questionnaire data collected across various sports schools, aiming to identify existing issues in academic performance, sports training, and the integration of both education systems. The discussion addresses key challenges in these institutions based on the averages and variations in the collected data.

Table 1 The result of the questionnaire survey

Questions Item	Mean	S.D.	Min	Max
Standardized academic course grades (latest two semesters) (out of 100 points)	75.23	4.50	65.00	85.00
The proportion of graduates entering higher-level educational institutions	0.36	0.07	0.20	0.55
Average sports competition ranking (latest two semesters)	4.63	1.30	1.82	7.23
The proportion of graduates becoming professional athletes/coaches, etc.	0.34	0.05	0.15	0.45



Questions Item	Mean	S.D.	Min	Max
Are there specialized academic course learning plans tailored for students of sports schools? (1 for yes, 0 for no)	0.32	0.20	0.00	1.00
The proportion of students attending after-school/after-match academic tutoring	0.24	0.06	0.10	0.35
Number of inter-school academic exams conducted between sports schools per semester	0.61	0.12	0.40	0.90
The proportion of students participating in study groups	0.13	0.03	0.05	0.20
Number of times academic course teachers participate in inter-school seminars per semester	0.25	0.06	0.10	0.40
Quality of sports facilities and training equipment (1-5 points)	3.82	0.25	3.50	4.50
Professional level of coaches (1-5 points)	4.11	0.20	3.70	4.80
The average number of competitions students participate in per year	3.32	0.40	1.50	3.50
The proportion of students who actively engage in additional sports training	0.45	0.15	0.20	0.70
Number of student recruitment channels	3.21	0.51	2.00	4.00
Does the school have a featured sports program? (1 for yes, 0 for no)	0.31	0.32	0.00	1.00
Is the school jointly managed by the sports bureau and the education bureau? (1 for yes, 0 for no)	0.57	0.35	0.00	1.00
Is there a reasonable arrangement for the academic course schedule during the sports competition preparation phase? (1 for yes, 0 for no)	0.78	0.15	0.50	1.00
Are there incentive mechanisms for teachers and coaches? (1 for yes, 0 for no)	0.42	0.35	0.00	1.00
Is interdisciplinary teaching (integration of academics and sports) implemented? (1 for yes, 0 for no)	0.23	0.30	0.00	1.00
The proportion of student parents participating in school activities	0.52	0.15	0.30	0.90
Does the school provide students with a feedback mechanism for teaching and training?	0.39	0.26	0.00	0.70
Does the school provide psychological support for students?	0.15	0.41	0.00	1.00



Questions Item	Mean	S.D.	Min	Max
The ratio of the number of sports teachers against academic teachers.	3.11	1.02	5.80	2.30

From Table 1, the results of the questionnaire can be summarized as follows:

1. Academic Teaching Performance and Support

(1) Academic Performance: The mean standardized academic course grade over the last two semesters is 75.23 (SD = 4.50), reflecting a relatively high academic standing among the students. However, the variation across students (min = 65.00, max = 85.00) indicates a performance gap that may be caused by differing access to academic resources or disparities in how students manage the demands of both academics and athletics. This suggests the need for targeted support for academically weaker students.

(2) Higher Education Enrollment: A key concern is the low proportion of graduates entering higher educational institutions, with an average of 36% (SD = 0.07). This low rate, coupled with substantial variation across schools, suggests that many students may not be receiving adequate academic guidance or preparation for further education. Institutions must improve access to higher education pathways, perhaps by enhancing academic advising services or providing preparatory courses.

(3) After-School Tutoring and Collaborative Learning: The data reveal a relatively low proportion of students (24%, SD = 0.06) attending after-school or after-match academic tutoring. Furthermore, only 13% (SD = 0.03) of students participate in study groups. These figures suggest that sports schools may not be offering sufficient academic support or fostering collaborative learning environments. A stronger emphasis on peer-to-peer learning or more structured academic tutoring could be beneficial, particularly for students facing difficulty balancing academics and athletics.

(4) Inter-School Academic Seminars and Collaboration: While inter-school academic exams occur fairly frequently (0.61 exams per semester, SD = 0.12), the low participation of teachers in inter-school seminars (0.25 per semester, SD = 0.06) suggests that academic collaboration between institutions could be improved. Such seminars could foster knowledge exchange between teachers, leading to the adoption of best practices that enhance academic outcomes for student-athletes.

2. Effectiveness of Sports Training Programs

(1) Professional Athletic Success: The proportion of graduates becoming professional athletes or coaches averages 34% (SD = 0.05). Although this is a positive indicator of the school's ability to train students for professional careers, there is still significant room for improvement, particularly when considering that many students likely enter these institutions with the primary goal of becoming professional athletes. The variation among schools suggests that certain institutions may have better training programs, which could be studied and replicated elsewhere.

(2) Sports Facilities and Coaching Quality: The quality of sports facilities is rated at an average of 3.82 out of 5 (SD = 0.25), and the professional level of coaches is rated at 4.11 (SD = 0.20). While both metrics suggest that the schools are generally well-equipped and staffed with competent coaches, the variations indicate that not all schools offer equal training conditions. Schools with lower-quality facilities or less experienced coaches may not be providing the optimal environment for students to thrive athletically.

(3) Student Engagement in Additional Sports Training: The data show that 45% (SD = 0.15) of students actively engage in additional sports training. This participation rate suggests that many students are motivated to improve their athletic skills. However, the relatively high standard deviation indicates that some schools or students are less engaged in such extra training. Schools should investigate the factors behind this variation to encourage more students to take part in supplementary training, which is crucial for enhancing athletic performance.

(4) Competitive Opportunities: The average number of competitions that students participate in

per year is 3.32 (SD = 0.40), reflecting regular exposure to competitive sports. However, the range (min = 1.50, max = 3.50) indicates that some schools offer significantly fewer competition opportunities, which may limit students' ability to develop their competitive edge. More consistent opportunities for competition across schools could foster better athletic preparedness.

3. Integration of Academic and Sports Education

(1) Customized Academic Curricula for Athletes: Only 32% (SD = 0.20) of sports schools offer specialized academic course learning plans tailored to the needs of student-athletes. This relatively low percentage highlights a significant gap in the educational approach to student-athletes' needs. Tailoring the curriculum to accommodate the unique demands on student-athletes—such as time constraints due to training—could improve both academic and athletic outcomes.

(2) Interdisciplinary Teaching and Integration: The data indicate that interdisciplinary teaching, or the integration of academics and sports education, is implemented in only 23% (SD = 0.30) of schools. This low rate of integration suggests that the majority of institutions treat academic and athletic education as separate tracks, which may create additional challenges for students attempting to balance both. A more integrated approach could help students better manage their time and develop skills that are useful both academically and athletically.

(3) Parental Involvement in School Activities: The proportion of student parents participating in school activities averages 52% (SD = 0.15), suggesting moderate parental involvement. Schools that foster greater parent engagement could benefit from stronger support systems for students, as parents play a key role in both academic and athletic development.

(4) Psychological Support Services: The provision of psychological support for students is extremely low, with only 15% (SD = 0.41) of schools offering these services. Given the intense pressure faced by student-athletes, especially those aiming for professional careers, this is a significant shortfall. Expanding access to psychological support services could help students cope with the mental and emotional demands of balancing sports and academics, reducing burnout and promoting overall well-being.

(5) Incentive Mechanisms for Teachers and Coaches: Only 42% (SD = 0.35) of schools offer incentive mechanisms for teachers and coaches. Incentives could enhance teacher and coach performance, leading to better academic and athletic outcomes for students. Schools should consider implementing more comprehensive incentive structures to motivate staff and improve student success rates.

(6) Administrative Collaboration: An encouraging 57% (SD = 0.35) of schools are jointly managed by both the sports bureau and education bureau, suggesting some degree of coordination between athletic and academic stakeholders. However, the substantial variation across institutions suggests that some schools lack this crucial collaboration, which could impede the effective integration of sports and academic curricula. Improved administrative collaboration could foster a more holistic approach to student-athlete development.

2. Potential Factors that Influence the Competency of Sports Students

In this section, the linear regression method was employed to identify critical factors that influence the integration of sports and education within the sports schools of Guangdong Province. This analysis aims to identify and elaborate on the main drivers that impact both the academic performance and sports achievements of students, thereby informing the development of the integrated model.



Table 2 Summary of the factors that influence the integration of sports and education

Type	Independent Variable	Academic Competency		Sports Competency	
		Academic Grades	Higher-level Education Ratio	Sports Competition Ranking	Sports Professional Ratio
Academic Factors	Specialized Academic Plans	Significant, Positive	Significant, Positive	No	No
	After-School Tutoring	Significant, Positive	Significant, Positive	No	No
	Inter-School Exams	Significant, Positive	Significant, Positive	Significant, Negative	No
	Study Groups	Significant, Positive	Significant, Positive	No	No
	Teacher Seminars	Significant, Positive	No	No	No
Sports Factors	Sports Facilities	No	No	Significant, Positive	No
	Professional Level of Coaches	No	No	Significant, Positive	Significant, Positive
	Number of Competitions	Significant, Negative	Significant, Negative	Significant, Negative	Significant, Positive
	Additional Sports Training	Significant, Negative	Significant, Negative	Significant, Positive	Significant, Positive
	Recruitment Channels	No	No	Significant, Positive	No
	Featured Sports Program	No	No	Significant, Positive	Significant, Positive
Integration Factors	Joint Management	Significant, Positive	No	No	Significant, Positive
	Schedule Arrangement	Significant, Positive	Significant, Positive	No	Significant, Positive
	Incentive Mechanisms	Significant, Positive	Significant, Positive	Significant, Positive	No
	Interdisciplinary Teaching	Significant, Positive	No	Significant, Negative	Significant, Positive
	Parent Participation	Significant, Positive	Significant, Positive	Significant, Positive	No
	Feedback Mechanism	Significant, Positive	No	Significant, Positive	Significant, Positive
	Psychological Support	No	Significant, Positive	No	Significant, Positive



Type	Independent Variable	Academic Competency		Sports Competency	
		Academic Grades	Higher-level Education Ratio	Sports Competition Ranking	Sports Professional Ratio
	Sports Teachers Ratio	Significant, Negative	No	Significant, Positive	No

From Table 2, the factors that influence the integration of sports and education within the sports schools of Guangdong Province can be summarized as follows:

(1) Academic Factors

Academic factors significantly impact the academic performance and, consequently, the overall competency of sports school students.

a. Specialized Academic Plans and After-School Tutoring have been shown to positively influence academic grades. Specialized plans provide tailored educational experiences that align with the unique needs of student-athletes, while after-school tutoring offers additional academic support, reinforcing learning and improving performance.

b. Inter-school exams and Study Groups also contribute positively to academic outcomes. Inter-school exams introduce a competitive element that encourages students to excel, while study groups facilitate collaborative learning, which can be particularly beneficial for students managing dual demands.

c. Teacher Seminars further enhance academic performance by ensuring educators are well-equipped with the latest teaching methodologies, thereby indirectly benefiting student performance.

Conversely, an excessive Number of Competitions and Additional Sports Training have been identified as factors that negatively impact academic grades. Overemphasis on sports can lead to diminished academic focus and performance.

(2) Sports Factors

In the realm of sports, various factors play a crucial role in enhancing athletic achievements and overall student competitiveness.

a. Sports Facilities and the Professional Level of Coaches have a positive impact on sports performance. High-quality facilities support effective training, while experienced coaches provide the expertise necessary for skill development and improved competition outcomes.

b. Additional Sports Training and Recruitment Channels contribute to better sports performance by enhancing athletic skills and providing opportunities for talented students.

c. Featured Sports Programs also positively influence sports achievements by attracting and nurturing talent through specialized training programs.

(3) Integration Factors

Integration factors are pivotal in ensuring a balanced approach to academic and sports excellence.

a. Joint Management of academic and sports programs ensures a coordinated approach, allowing students to excel in both areas without compromising one for the other. Effective Schedule Arrangement and Incentive Mechanisms further support this balance by providing structured planning and motivational rewards.

b. Interdisciplinary Teaching and Parent Participation contribute to a holistic educational experience, integrating sports and academic learning. This integration fosters overall development and enhances student competency in both domains.

c. Feedback Mechanisms and Psychological Support are also crucial, as they help students manage stress and maintain motivation, thereby supporting sustained performance in both academic and sports arenas.

However, the Sports teacher ratio has a two-way impact on academic and sports performance, and



the overall influence on student competitiveness is not clear. This factor will not be included in the model.

3. Model to Improve Competencies of Sports School Students

Based on the findings from the data analysis, a model was constructed and refined. The development of this model is crucial to enhancing the competencies of students in sports schools across Guangdong Province. The model addresses both the academic and athletic needs of students and incorporates feedback from stakeholders through various iterations of refinement. After three rounds of the Delphi Method, the final round showed very consistent and supportive opinions from experts.

Table 3 Third-round Delphi results

Type	Indicator	Median Rating (1-5)	IQR	Expert Attitude	Consensus Level
Academic Factors	Develop Academic Study Plans Tailored to Sports School Students	4.32	0.71	Support	High Consensus
	Increase After-School and Post-Competition Tutoring	4.73	0.62	Support	High Consensus
	Regular Academic Performance Comparisons and Analysis Between Sports Schools	4.41	0.63	Support	High Consensus
	Establish Study Groups	4.52	0.74	Support	High Consensus
	Encourage Academic Teachers to Participate in Inter-School Seminars	4.40	0.63	Support	High Consensus
Sports Factors	Improve Training and Sports Facility Quality	4.73	0.51	Support	High Consensus
	Upgrade Coaches' Qualifications and Strengthen Professional Skills	4.62	0.70	Support	High Consensus
	Provide More Competition Opportunities	4.62	0.51	Support	High Consensus
	Stimulate Students' Training Motivation	4.54	0.62	Support	High Consensus
	Expand Recruitment Channels for Sports Schools	4.63	0.51	Support	High Consensus
Integration Factors	Coordinated Management of Sports and Education Bureaus	4.32	0.73	Support	High Consensus
	Reasonable Arrangement of Training and Academic Time	4.51	0.5	Support	High Consensus
	Provide Incentive Plans for Coaches/Teachers	4.5	0.61	Support	High Consensus
	Use Innovative and Integrated Teaching Methods	4.82	0.54	Support	High Consensus

Type	Indicator	Median Rating (1-5)	IQR	Expert Attitude	Consensus Level
	Establish Feedback Mechanisms for Student Academics and Training	4.83	0.60	Support	High Consensus
	Reduce Regional Disparities in Funding	4.51	0.72	Support	High Consensus

Based on the above analysis in Table 3, the final model is as follows:



Figure 2 Integrated Model on Sports and Education to Enhance the Competencies of Sport Schools Students in Guangdong Province, People's Republic of China

Conclusion

The integrated model for sports and education in Guangdong's sports schools offers a strategic framework for enhancing student-athletes' academic and athletic competencies. Based on the findings, the following 17 suggestions are organized into three core dimensions—academic, sports, and integration of sports and education—offering a comprehensive approach for improvement.

1. Academic Dimension

To strengthen the academic performance of student-athletes, several targeted measures are necessary. First, schools need to develop tailored academic plans that align with the specific needs of student-athletes. These plans should consider the demanding training schedules and adjust learning methods accordingly. Additionally, there should be a focus on increasing after-school tutoring and post-competition academic support to help students catch up on missed lessons and maintain their academic progress.

Furthermore, conducting regular academic assessments and comparisons between sports schools will provide critical insights into students' performance across institutions. Creating study groups will promote peer collaboration and help student-athletes manage their academic workload more effectively. Lastly, professional development for teachers through inter-school seminars will ensure they are equipped with the best teaching practices to support student-athletes.

2. Sports Dimension

On the sports side, the model emphasizes the need to improve the overall training environment for student-athletes. One major focus is the upgrading of sports facilities, ensuring students have access to



high-quality training environments that foster skill development. Equally important is the enhancement of the qualifications and professional development of coaches, providing them with the tools to better train and mentor students.

Additionally, schools should offer more competitive opportunities to ensure students have ample exposure to real-world sporting events, crucial for honing their athletic skills. To further support student engagement, efforts must be made to increase student motivation through incentive programs that recognize and reward athletic dedication. Finally, expanding recruitment channels is necessary to attract a diverse range of talented student-athletes, enriching the sports schools with fresh potential.

3. Integration of Sports and Education Dimension

The integration of sports and academics is central to the model's success, requiring a coordinated approach across both domains. Strengthening joint management between the sports and education bureaus is critical to ensure smooth collaboration and balance between the two. Schools should also focus on implementing balanced schedules that allow students to succeed in both their academics and sports training without facing burnout or excessive pressure during peak competition times.

Further integration can be achieved through innovative, interdisciplinary teaching methods that connect academic content with sports, helping students to apply their knowledge across both areas. The establishment of comprehensive feedback mechanisms will provide students with valuable insights into their academic and athletic performance, fostering a continuous cycle of improvement. Finally, efforts must be made to reduce regional disparities in funding, ensuring equitable access to resources, facilities, and coaching across all sports schools, regardless of location.

Discussion

Integration of Sports and Education as a Policy and Practice: The literature review emphasizes the evolution of policies from the combination of sports and education to a more integrated approach, highlighting the need for holistic development of student-athletes (Dai, 2010; LI, 2020; Yang, 2021). The research findings support this by identifying specific areas for improvement in current sports schools, such as the need for specialized academic plans, after-school tutoring, and interdisciplinary teaching methods. These findings align with the literature's call for a more integrated system that balances academic and athletic development.

Cultivation of Reserve Talents: The literature review discusses the importance of nurturing competitive sports talents through an integrated approach (Liu, 2020). The research provides empirical evidence of the challenges faced in talent cultivation, such as the high elimination rate in sports and the need for a more scientific training methodology. These insights are consistent with the literature's emphasis on the need for a systematic and effective talent development program.

Academic and Athletic Performance: The literature review points out the need to enhance both academic and athletic performance in sports schools (Ma and Zhai, 2016). The research data analysis reveals that factors like specialized academic plans, additional sports training, and the quality of sports facilities significantly influence student performance. These findings are in line with the literature's suggestions for improving educational and athletic outcomes.

Challenges and Opportunities: Both the literature review and the essay's findings identify similar challenges, such as the need for reform in educational materials, teaching methods, and the overall educational system to better prepare young athletes (Pestano, 2021; Djamel-Mokrani Djamel, 2020). The research model construction and validation processes provide a practical approach to addressing these challenges, offering strategies that are supported by the literature's theoretical frameworks.

Professional Learning Communities (PLCs) and Collaborative Learning: The literature review suggests the use of PLCs and collaborative learning to enhance professional development and student outcomes (Zhou, 2021). The research findings emphasize the importance of teacher seminars and study groups, which are practical applications of PLCs and collaborative learning. These findings underscore the literature's advocacy for collaborative environments to improve educational practices in sports schools.



Unit Teaching and Interdisciplinary Integration: The literature review advocates for unit teaching and the integration of sports with other disciplines to promote a comprehensive educational experience (Lin, 2023). The research findings, particularly the significance of interdisciplinary teaching and the establishment of study groups, reflect this approach. The research provides concrete examples of how such integration can be implemented effectively in sports schools.

Recommendation

1. Recommendation for Current Research

(1) Develop a comprehensive stakeholder engagement strategy that includes students, teachers, administrators, and parents in the decision-making process regarding the integration of sports and education. This approach will ensure that the model is responsive to the diverse needs and expectations of the school community.

(2) Implement a longitudinal study to track the academic and athletic progress of students over several years, allowing for the assessment of the long-term impact of the integrated model on student development.

(3) Collaborate with educational and sports authorities at the provincial and national levels to align the integrated model with broader educational policies and sports development strategies.

2. Recommendation for Further Research

(1) Establish a dynamic monitoring system to evaluate the effectiveness of the integrated model in real-time, enabling adjustments to be made as needed to address emerging challenges and opportunities.

(2) Integrate interdisciplinary modules into the curriculum that combine academic subjects with sports-related content, fostering a more holistic educational experience for student-athletes.

(3) Conduct a cross-case analysis of the integrated model's implementation across different sports schools, identifying best practices and areas for improvement that can be generalized to other institutions.

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