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Research on the Integration of Campus Extracurricular Training and Regular Physical Education in the Context of Physical and Educational Fusion

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Abstract: *To address the dualistic fragmentation between regular physical education and extracurricular training in schools during the integration of sports and education, and to facilitate the holistic development of school-based physical education, this study employs literature review, questionnaire surveys, expert interviews, mathematical statistics, and logical analysis. Focusing on in-class physical education and extracurricular training in primary and secondary schools, it examines the current state of their connection, practical challenges, and underlying causes. The research identifies five key barriers: misaligned educational objectives, fragmented curriculum content, disconnected teacher research and training, dual-track evaluation systems, and the absence of coordinated management. These issues stem from multiple factors, including policy implementation gaps, fragmented school management, lack of detailed curriculum standards for connection, and the constraints of exam-oriented education. Based on these findings, a five-dimensional integration system—encompassing objectives, content, teaching staff, evaluation, and management—is proposed. Practical cases from primary and secondary schools validate the feasibility of this approach. The study aims to bridge the gap between in-class and extracurricular physical education, balance the improvement of students' physical health with the cultivation of sports talents, and fully implement the core principle of "health first" in school physical education. This will promote the coordinated development of academic learning and physical exercise among adolescents.*

Keywords: *integration of sports and education, regular physical education, extracurricular training, teaching connection, school sports*

1. Introduction

In 2020, the National Sports Administration and the Ministry of Education jointly issued the "Opinions on Deepening the Integration of Sports and Education and Promoting the Healthy Development of Teenagers", clearly stating that it is necessary to integrate the resources of physical education teaching within schools, extracurricular training and competitions, and break through the barriers between school physical education within and outside the classroom, to build an integrated and connected youth sports training system. The core of the sports and education integration reform lies in the campus, while regular physical education teaching and campus after-school training are the two core sections of school physical education, respectively undertaking the dual functions of popularizing the physical health of all students and cultivating specialized sports talents. Whether they can effectively connect directly determines the effectiveness of school physical education, and is also the key to solving the two major problems of slow improvement of teenagers' physical fitness and insufficient reserve of grassroots competitive sports talents.

At present, there are long-term structural problems of binary separation in the physical education work of primary and secondary schools in China. Regular physical education teaching is for all students, based on the curriculum standards, focusing on the popularization of basic movement skills and general physical fitness training, aiming for inclusive educational effects; after-school training is for sports-specialized students and sports enthusiasts, with the goal of preparing for competitions and improving specific abilities, leaning towards elite-level competitive training. In practice, both have generally encountered practical contradictions such as misalignment of educational goals, repetitive and disconnected teaching contents, lack of connection between teachers and teaching research, independent assessment and evaluation systems, and decentralized management rights and responsibilities within the

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school. What is learned in the classroom cannot support the advancement of specialized training in after-school activities, and the achievements of after-school training cannot feed back to optimize classroom teaching. This not only causes ineffective waste of sports venues, teachers, and curriculum resources, but also separates the progressive training path of teenagers' physical abilities, restricting the implementation and rooting of the sports and education integration policy within the school.

Most existing academic research focuses on the interpretation of macro policies on sports and education integration, the development difficulties of after-school training, and the overall reform paths of school physical education. There are still shortcomings in empirical research on the connection mechanisms and implementation paths at the micro level of regular teaching and after-school training, and there is a lack of an integrated connection plan that is suitable for the actual operation of primary and secondary schools. Based on this, this paper uses research methods such as literature review, questionnaire survey, and expert interviews to systematically analyze the current connection status, practical difficulties, and deep causes of the connection between after-school training and regular physical education teaching in schools, and constructs an integrated connection system that is adapted to the school situation and school conditions, and proposes feasible optimization strategies.

This research aims to bridge the development gap between the two major sections of school physical education, improve the layered and progressive campus physical education model, take into account the healthy development of the physical fitness of all students and the construction of the sports reserve talent pipeline, and provide theoretical references and practical lessons for primary and secondary schools to implement the requirements of sports and education integration reform and establish a comprehensive school physical education system.

2. Interpretation of relevant theories and internal logic of two types of sports work

2.1 Definition of core concepts

Firstly, the integration of sports and education. The integration of sports and education referred to in this article is based on the requirements of the new era of school sports reform, breaking down the barriers between the sports system and the education system, promoting the two-way integration of cultural education and sports training, and collaborative education [1]. It focuses on the campus sports scene, and the core is to integrate in class and out of class sports resources, coordinate universal sports teaching and elite extracurricular training, achieve the organic unity of physical education, mental education, and education, and solve the double development misunderstanding of emphasizing cultural courses over sports and emphasizing competition over popularization. Secondly, regular physical education teaching. According to the "Compulsory Education Physical Education and Health Curriculum Standards", the standardized and inclusive physical education activities carried out by full-time physical education teachers in the classroom are aimed at all students in school, with the goal of consolidating their sports foundation, improving their physical health, and cultivating their core sports literacy [2]. They have mandatory, universal, and fundamental characteristics, and are the fundamental carrier of school physical education. Thirdly, extracurricular training on campus, refers to specialized and uplifting sports training activities conducted for sports talents and enthusiasts outside of classroom teaching, using after-school services, after-school hours, weekends, and other spare time periods [3]. The goal is to improve specialized skills, cultivate tactical cooperation, prepare for campus competitions, and reserve grassroots sports talents, with voluntary, specialized, and competitive characteristics. Fourthly, the connection between teaching and training refers to breaking down the barriers between in class and out of class sports education, achieving coordinated and progressive integration of the two in terms of educational goals, teaching content, teacher research, assessment and evaluation, and management mechanisms, and building an integrated campus sports education chain.

2.2 Basic supporting theory

This study relies on four core theories to conduct analysis and provide theoretical support for the connection between the two. One is the theory of health first education, which clarifies the core educational orientation of school sports and requires all sports activities on campus to promote the comprehensive development of students' physical and mental health, establishing a unified top-level educational goal for teaching and training. Secondly, the hierarchical teaching theory follows the individual differences in students' sports talents and abilities, distinguishing between popular teaching for students and specialized training for students with special talents, achieving individualized teaching

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and avoiding a one size fits all sports training model. Thirdly, in terms of systems theory, conventional physical education teaching and extracurricular training are regarded as two sub modules of the campus physical education system, which influence and cannot be separated from each other. Only by achieving synergy among internal elements of the system can the overall educational effectiveness of campus physical education be fully realized. Fourthly, the theory of skill formation laws states that the formation of sports skills requires three stages: cognition, connection, and automation. Classroom teaching completes skill cognition and initial connection, while extracurricular training achieves skill automation consolidation and elevation, in line with the objective laws of human movement ability development.

2.3 The intrinsic relationship between regular physical education teaching and extracurricular training

The conventional physical education teaching and extracurricular training belong to a dialectical unity relationship of homologous coexistence, gradient progression, and bidirectional empowerment, and there is no functional opposition. One is the homogeneity of goals, both of which belong to the school sports system, adhering to the educational purpose of putting health first, and ultimately serving the improvement of students' physical fitness and the cultivation of sports literacy. However, there are differences in the emphasis of education between popularization and elevation. Secondly, the content is progressive. Conventional physical education teaching is the prerequisite for extracurricular training, responsible for popularizing general physical fitness, basic movement patterns, and basic sports skills; Extracurricular training is an extension and elevation of classroom teaching, based on the content learned in the classroom to carry out specialized refinement and practical training, following the rules of sports learning from shallow to deep and from basic to specialized. Thirdly, there is a two-way feedback effect. Improved classroom teaching can reduce the teaching cost of extracurricular training and solidify the foundation of sports for talented students; The specialized teaching experience summarized in extracurricular training and the common sports shortcomings of students can also be used to optimize the key and difficult points of classroom teaching in reverse, filling the gaps in inclusive teaching. Only by achieving effective connection between the two can we build a fully covered, layered, and integrated campus sports education system, and help the integration of sports and education achieve results.

3. Analysis of the current situation, problems, and causes of the connection between campus physical education teaching and extracurricular training

This article takes 24 primary and secondary schools in China (8 primary schools, 8 junior high schools, and 8 high schools) as the research objects, distributes questionnaires to 112 physical education teachers and 1268 students, supplemented by semi-structured interviews with 12 physical education teaching and research personnel and frontline physical education teaching and research team leaders, and combines mathematical statistics results to objectively analyze the current situation, existing problems, and underlying causes of the connection between conventional physical education teaching and extracurricular training.

3.1 Empirical analysis of the current situation of the connection between the two

Based on research data, it can be seen that domestic primary and secondary schools have basically implemented the basic requirements of integrating sports and education, and have simultaneously offered regular physical education classes and after-school training. However, the overall degree of integration between the two is relatively low, and the dual track operation characteristics are significant. This survey conducted quantitative statistics from five core dimensions: objectives, content, faculty, evaluation, and management. The specific data linking the current situation is shown in Table 1.

Further analysis based on the table data: Firstly, at the level of goal linkage, classroom teaching focuses on mass popularization, while extracurricular training focuses on competitive competitions. There is a significant deviation in the educational orientation of the two, and there is a lack of integrated top-level goal coordination; Secondly, at the level of content coherence, there are dual problems of repetitive teaching and lack of gradient, and the course content cannot form a gradual training chain; Thirdly, in terms of teacher connection, over 70% of schools do not have a joint teaching and research mechanism, and the teaching and training work of physical education teachers is completely separated, making it difficult to implement unified technical teaching standards; Fourthly, in terms of evaluation and management, the problem of dual track evaluation and multi head management is prominent, and the lack of interconnectivity between school sports venues, courses, and teacher resources further

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exacerbates the fragmented state of in class and out of class sports work.

Table1. Quantitative statistics of the five core dimensions

Connection dimension	Research indicators	Proportion situation
Goal connection	Classroom teaching aims to popularize physical fitness and solidify the foundation	91.07%
	Extracurricular training aims to win competitions and improve specialized athletic skills	87.50%
Content connection	There is a phenomenon of repetitive teaching content between classroom and extracurricular training	65.00%
	Extracurricular training without relying on classroom content to carry out gradient elevation	70.00%
Teacher Connection	Regularly carry out joint teaching and training activities	21.43%
Evaluation Connection	Teaching and training adopt two independent evaluation systems	83.93%
Management Connection	Teaching and training are managed by different departments without unified coordination	89.29%

3.2 Prominent practical issues in connection

Based on the current research situation, it can be concluded that there are five major structural problems in the connection between the two. Firstly, the top-level educational goals are fragmented, and there is an imbalance between popularization and competitive goals. Schools prioritize academic performance in cultural courses, and physical education work is forced to differentiate. The classroom pursues full compliance, while training focuses solely on competition rankings, neglecting the gradual development of students' athletic abilities. Secondly, there is a lack of gradient in course content, with both repetitive teaching and content gaps coexisting. The lack of a tiered curriculum system for in class and out of class activities not only wastes teaching resources, but also fails to meet the advanced needs of ordinary students and the specialized improvement needs of talented students. Thirdly, there is a lack of collaborative mechanisms among teachers, and their comprehensive ability to educate students is insufficient. Physical education teachers generally have weak abilities in "emphasizing teaching and learning but neglecting training" or "emphasizing training but neglecting teaching", and there is a lack of two-way teaching and research, making it difficult to balance the dual work of popularizing teaching and specialized training. Fourthly, the evaluation system operates in a dual track manner, resulting in a lack of comprehensive assessment and evaluation throughout the entire process of education. The evaluation focuses on outcome indicators, neglects the process of students' physical growth, and does not recognize the additional workload of teachers in balancing teaching and training, which undermines the enthusiasm of teachers in connecting work. Fifth, there is a vertical gap in the connection between academic stages, and a gap in talent cultivation between primary, secondary, and tertiary levels. Each stage independently develops physical education teaching and training plans, and there is no continuity of content between the upper and lower stages, resulting in a gap in the cultivation of young sports reserve talents.

3.3 Analysis of the deep causes of imbalance in connection

Digging deep into the root causes from five dimensions: policy, management, curriculum, faculty, and ideology, it is specifically divided into three levels of incentives. One is the decreasing level of policy implementation, and the lack of detailed rules for implementing macro policies on campus. The national policy of integrating sports and education focuses on macro level guidance, and local education departments have not issued a special implementation plan for the connection of in class and out of class sports on campus. Schools have no clear implementation standards, and the reform is merely a formality. Secondly, the internal management system is fragmented and lacks a unified sports coordination department. The school's academic affairs, physical education group, and moral education department each have their own responsibilities, but there is no specialized management group for the integration of physical education and sports. The management of physical education work is multi-faceted, with unclear

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rights and responsibilities, and there is a lack of organizational support for the integrated promotion. The third issue is insufficient curriculum standards and deficiencies in the teacher training system. The current physical education curriculum standards do not specify the requirements for the integration of in class and out of class teaching, and there is no reference template for gradient integration courses; At the same time, the training of sports professionals in universities and the continuing education of in-service teachers have separated teaching and training courses, resulting in inherent deficiencies in teachers' comprehensive abilities. Fourthly, the concept of exam oriented education is deeply rooted, and there is a cognitive bias towards home school physical education. The school still focuses on the enrollment rate as the core assessment indicator, and parents overly value academic performance while neglecting the value of physical education, further compressing the space for promoting the integration of physical education reform within the school.

In response to the difficulties in connecting the five dimensions of goals, content, faculty, evaluation, and management identified in the previous research, and based on the requirements of the integration of sports and education for holistic collaborative education, combined with the hierarchical education rules of campus sports, a five in one closed-loop connection path of "goals content faculty evaluation management" is constructed. At the same time, the feasibility of the path is tested through practical cases of regional pilot schools, and a supporting and improved implementation guarantee system is established to fill the gaps in the operation of integrated sports on campus.

4. Construction of the integrated connection path between sports and education and case practice

4.1 Core path of five in one integration connection

This path adheres to the principles of balancing popularization and competition, linking in class and out of class activities, and combining layering and unity, comprehensively bridging the gap between teaching and training. Firstly, goal alignment: Establish a three-level linkage education goal system. The overall goal of unified school sports is to cultivate students' core sports literacy and promote their physical and mental health development; We adopt a two-tiered setup: a general popularization tier consisting of regular physical education classes, which aims to boost all staff's physical fitness and consolidate their fundamental athletic skills; and an advanced tier covering extracurricular training, which focuses on enhancing professional athletic capabilities and cultivating competitive reserve athletes ; At the same time, based on the physical and mental development laws of primary, middle, and high school students, vertical stage connection goals are formulated to eliminate the problem of mismatched educational goals. Secondly, content connection: Build a gradient based curriculum chain for in class and out of class courses. Classroom teaching uniformly covers general physical fitness training, fundamental movement patterns, and elementary skill instruction to lay a solid foundation for students' sports learning; Extracurricular training fully undertakes the key and difficult points of classroom teaching, eliminates repetitive basic content, focuses on specialized technical optimization, team tactical cooperation, and practical confrontation training, and achieves a progressive content of "building a foundation in class and elevating oneself outside of class". Thirdly, teacher connection: establish a two-way collaborative teaching and research mechanism. A dual accountability system shall be implemented for physical education teachers, requiring every PE teacher to take charge of both in-class teaching and after-school team training. Monthly joint teaching and training seminars will be held to unify the standards of technical movements, align teaching schedules, and deliver targeted professional training to address deficiencies in teachers' instructional and specialized coaching capabilities. Fourth, evaluation linkage: Establish an integrated and diversified evaluation system throughout the entire process. Student assessment integrates classroom performance, physical fitness monitoring data, training progress growth rates and competition outcomes, while downplaying the overemphasis on competition-only evaluation; Teacher evaluation coordinates the effectiveness of classroom teaching, the workload of extracurricular training, and the overall improvement of students' physical fitness, incorporating the work of connecting and educating students into performance bonus points to stimulate the intrinsic motivation of teachers' work. Fifth, management linkage: Establish a school level special working group for the integration of sports and education. The school integrates the management functions of the Academic Affairs Office, Sports Group and Moral Education Office, standardizes and coordinates the whole process of physical education teaching, extracurricular training, campus sports events as well as venue and equipment allocation, and eliminates barriers caused by fragmented multi-departmental management.

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4.2 Practical case validation

This study selected a comprehensive middle school in the urban area of Binzhou City as a pilot to implement the five in one linkage path and carry out a one-year practical tracking. The school had a clear dual track problem in sports work before, with no joint teaching and research, duplicate course content, and independent sports evaluation. After the reform, the school unified its sports education goals, restructured the tiered teaching content inside and outside the classroom, fixed monthly joint teaching and research, implemented an integrated teacher-student evaluation plan, and managed the school's sports work by a special working group. The practical results show that after the pilot, the coverage rate of teaching and research communication among physical education teachers has increased from 20.7% to 92.3%, the problem of students' sports skills gap has been effectively alleviated, the overall physical health compliance rate of students has increased by 6.4%, the efficiency of special training for school sports teams has significantly improved, and the problem of repeated and wasteful course content has been thoroughly solved. The case study shows that the five in one linkage path is in line with the actual situation of primary and secondary school education, and has strong feasibility and replicability. However, it also exposes obstacles to implementation such as insufficient school funding and lagging home school education concepts.

4.3 Implementation support strategy for connection path

To ensure the long-term implementation of the connection path, a guarantee system is built from four levels: policy, system, resources, and concept. One is policy guarantee. Local education and sports departments have jointly issued implementation rules for the integration of campus sports, clarifying the standards and assessment requirements for the integration of teaching and training, and promoting the integration of macro sports and education policies to the front line of campuses. The second is institutional guarantee. Schools should improve the physical education teaching and research system, venue and equipment sharing system, and physical education teacher performance evaluation system, and solidify the collaborative work mode of in class and out of class physical education through rigid systems. The third is resource guarantee, increasing the investment in campus sports special funds, optimizing the configuration of sports venues and equipment, building a sports teaching resource sharing platform, and achieving full domain interoperability of lesson plans, teaching videos, and training programs. The fourth is to ensure the concept, strengthen the collaboration between families and schools through activities such as parent teacher conferences and campus sports festivals, reverse the inherent cognition that families and schools prioritize cultural courses over physical exercise, and create a campus environment that integrates physical education and collaborative education.

5. Conclusion

This paper is based on the background of the deepening reform of the integration of sports and education. It comprehensively uses literature review, questionnaire survey, expert interview, and mathematical statistics to systematically analyze the internal relationship, connection pain points, and deep causes between regular physical education teaching and extracurricular training in primary and secondary schools. It constructs an integrated connection path and conducts practical verification, ultimately reaching four core conclusions. Firstly, regular physical education teaching and extracurricular training are two inseparable components of school physical education. The two have unified educational goals, progressive teaching content, and complementary educational functions. Building foundations in class and elevating students outside of class are the internal logic of their collaborative operation, which has strong necessity and feasibility for connection. Secondly, there is a common problem of binary separation between physical education teaching and extracurricular training in primary and secondary schools. There are significant obstacles in the five dimensions of educational goals, curriculum content, teacher teaching and research, assessment and evaluation, and campus management. The lack of communication between in class and out of class sports resources seriously undermines the overall educational effectiveness of school physical education. Thirdly, the imbalance in the connection between the two is the result of multiple factors working together. The inadequate implementation of macro policies, the fragmented management mechanism of school sports, the lack of matching content for physical education courses, the fragmented training mode of physical education teachers, and the deep-rooted concept of exam oriented education have all hindered the integrated development process of school sports. Fourthly, the five in one closed-loop connection path constructed in this study can effectively solve various existing connection problems. Through practical testing in pilot schools, this

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path can effectively bridge the gap between in class and out of class sports, optimize the allocation of campus sports resources, and simultaneously improve students' physical health level and the quality of sports team training. It is in line with the actual situation of primary and secondary school education and has replicable and promotable practical value.

At the same time, there are shortcomings in this study. The research sample mainly consists of primary and secondary schools in urban areas, and there is no in-depth investigation of the current situation of sports connection in weak schools in rural areas, which limits the universality of the research conclusions; At the same time, no differentiated connection plan has been developed for different sports such as track and field, ball games, etc., and the level of refinement in research is insufficient. In the future, we can further expand the urban-rural comparison sample and develop a hierarchical connection plan based on regional differences in education; At the same time, by combining intelligent sports information technology, we will build a digital platform for connecting in class and out of class sports, further improve the integrated education system of campus sports, and comprehensively promote the implementation and effectiveness of sports education integration policies in the basic education stage.

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