**The dilemma and breakthrough of teachers' professional development in school physical education reform**

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Abstract: This study examines practical challenges in teacher professional development within the context of school physical education reform. It provides an in-depth analysis of existing difficulties and proposes breakthrough strategies, while elucidating the theoretical foundations of teacher professional growth through exploration of its core concepts, related theories, and key elements. The research identifies four critical issues hindering professional development among university physical education teachers: outdated knowledge and skill sets, limitations in teaching methodologies, deficiencies in training systems, and imperfect evaluation mechanisms. To address these challenges, the paper suggests enhancing knowledge and skill updates, promoting modern teaching technologies, improving training and evaluation frameworks, and encouraging proactive teacher participation in educational reforms. These recommendations aim to provide both theoretical insights and practical guidance for advancing the professional growth of university physical education teachers and elevating the quality of physical education instruction.

Key words: physical education; teacher development; dilemma analysis; practical strategies

 **foreword**

With the accelerated modernization of education and the deepening reform of school physical education, the requirements for teachers 'professional competence have become increasingly stringent. As key drivers in implementing educational reforms, the professional development level of university physical education teachers directly determines the effectiveness of sports education reform. In today's era of interdisciplinary integration in physical education, where intelligent technologies are closely integrated with teaching practices, traditional instructional models face challenges. However, some university physical education teachers encounter issues such as outdated knowledge and skills, and insufficient teaching innovation during the adaptation process, which constrain the improvement of physical education quality. Analyzing the challenges in the professional development of university physical education teachers and establishing scientific breakthrough strategies hold significant theoretical and practical implications for advancing sports education reform and cultivating high-quality talents.

**Theoretical basis of teacher professional development**

**(1) The connotation of teachers' professional development**

Teacher professional development represents a dynamic process of continuous growth throughout an educator's career, with its core focus on enhancing pedagogical competencies and professional expertise. This developmental journey encompasses not only the updating of knowledge and skills but also the deepening of educational philosophies, strengthening of professional ethics, and improvement of reflective capabilities. As teachers progress from novice to expert educators, they must continuously adapt to educational reform requirements, optimize teaching methodologies, and prioritize students' holistic development[1]. The process emphasizes autonomy and lifelong learning, encouraging educators to proactively explore teaching practices while integrating theory with experience. Ultimately, this transformation enables teachers to evolve from "knowledge dispensers" to "educational innovators," providing essential support for elevating educational quality.

**(2) Theories of teacher professional development**

Teacher professional development theory provides systematic guidance for practice, encompassing multiple classic schools. The Lifelong Learning Theory emphasizes continuous teacher learning throughout their careers to adapt to knowledge updates. Cognitive Development Theory focuses on the maturation of teaching thinking, such as evolving from initial imitation to independent innovation. Social Construction Theory highlights that professional growth relies on interpersonal interactions, with mentor-mentee partnerships and collaborative research playing crucial roles. Reflective Practice Theory underscores the value of teaching reflection, advocating spiral progress through critical examination of instructional practices. Together, these theories form a multidimensional framework for understanding the patterns of teacher development.

**(3) Key elements of teachers' professional development**

Teacher professional development requires the coordinated efforts of multiple key elements. The foundation lies in professional knowledge, encompassing subject-specific expertise, educational psychology, and interdisciplinary integration capabilities. Teaching skills form the core component, involving practical competencies such as classroom management, instructional design, and information technology application. Professional ethics serve as the soul, manifested through dedication to education, care for students, and professional integrity. Reflective ability acts as the driving force, enabling teachers to summarize experiences, identify issues, and optimize improvements after teaching. External support provides safeguards, including school-provided training resources, research platforms, and incentive mechanisms. These interconnected elements collectively facilitate the gradual enhancement of teachers' professional competence[2].

**2. Analysis of the dilemma of professional development of college physical education teachers**

**(1) Knowledge and skills update lags behind**

College physical education teachers exhibit significant delays in knowledge and skill updates, making it difficult to meet the demands of modern sports education. As shown in Table 1, with the interdisciplinary integration trend in sports disciplines, emerging fields like sports rehabilitation and sports technology are rapidly evolving. However, most teachers remain confined to traditional sports curriculum content. In terms of technical skills, there is a widespread lack of proficiency in modern sports teaching requirements such as smart equipment operation and sports data analysis. Some teachers demonstrate insufficient mastery of cutting-edge skills like scientific physical training and injury prevention[3]. The root cause lies in limited knowledge acquisition channels—most teachers rely on past teaching experience without systematic new knowledge training. Additionally, heavy teaching workload restricts time for skill upgrades, leading to a disconnect between teaching content and industry developments as well as students' needs.

|  **problem types**  |  **present situation**  |  **cause**  |
| --- | --- | --- |
| Knowledge updates | It is still dominated by traditional projects and lacks knowledge of emerging fields | Lack of training and reliance on old experience |
|  level of skill  | Insufficient use of smart devices and data analytics capabilities | Busy work, few learning opportunities |
|  teaching efficiency  | Content lags behind industry developments and student needs | Knowledge and skills are updated slowly |

Table 1 Knowledge and skills update lags behind

**(2) Limitations of teaching methods and means**

College physical education instructors face inherent limitations in teaching methodologies. Traditional approaches struggle to effectively engage students, with most courses still relying on the "demonstration-practice" one-way instruction model that overlooks individual differences and student agency. Modern educational technologies like multimedia and virtual simulations remain underutilized, as many teachers continue using basic equipment. These constraints result in rigid, uninteractive teaching processes that fail to meet students' demands for personalized learning and engaging classroom experiences. Compounded by challenges such as oversized class sizes and limited facilities, advanced pedagogical methods including differentiated instruction and contextualized learning prove difficult to implement effectively, thereby hindering quality improvement[4].

**(3) The deficiency of teacher training and continuing education**

The current training and continuing education system for physical education teachers in universities has inherent shortcomings that fail to meet professional development needs. The curriculum remains disconnected from practical teaching realities, predominantly consisting of theoretical lectures while lacking hands-on practice and targeted guidance. These programs offer limited support for addressing specific challenges in sports instruction. The training formats are rigidly structured, predominantly featuring short-term intensive courses without long-term follow-up or personalized cultivation plans, resulting in ineffective continuous learning outcomes. Furthermore, the distribution of continuing education resources is uneven, with premium training opportunities disproportionately allocated to senior faculty members. Younger educators and grassroots teachers receive fewer participation opportunities. Inadequate evaluation mechanisms render training sessions superficial, leading to low teacher engagement and failure to achieve the goal of knowledge renewal and competency enhancement.

**(4) Imperfection of teacher evaluation and incentive mechanism**

The evaluation and incentive mechanisms for high school physical education teachers remain underdeveloped, severely impacting their motivation for professional growth. Current assessment criteria exhibit biases, overemphasizing research achievements and publication records while neglecting core indicators like teaching competence and educational outcomes. This has led to a widespread phenomenon where teachers prioritize research over instruction. The incentive system lacks specificity, with material rewards failing to match spiritual recognition, resulting in insufficient acknowledgment of innovative teaching practices and curriculum reforms[5]. The evaluation methods are monotonous and rigid, predominantly relying on top-down administrative assessments that exclude diverse dimensions such as student feedback and peer reviews. This approach fails to comprehensively reflect teachers' professional competencies, distorting their career development trajectories. Consequently, educators become reluctant to invest effort in enhancing teaching skills, fostering an unhealthy development trend that prioritizes research over instruction.

**Third, the breakthrough strategy of professional development dilemma of school physical education teachers**

**(1) Strengthen the update of teachers' professional knowledge and skills**

Higher education institutions should establish a systematic knowledge and skill renewal mechanism to help teachers adapt to the evolving demands of physical education. This includes creating an "advanced sports knowledge repository" that regularly shares cutting-edge research in sports rehabilitation, big data analytics, and intelligent training. The institution should also organize interdisciplinary expert lectures to broaden faculty expertise and conduct specialized skill enhancement programs. Practical training should focus on operational skills for smart sports equipment, prescription development, and data analysis of fitness assessments, complemented by a competency certification system. Furthermore, teachers are encouraged to engage in industry collaborations with professional sports teams and fitness organizations to integrate advanced technologies and training philosophies into teaching. Schools must allocate teaching tasks reasonably to ensure teachers have fixed annual time for skill development, while maintaining records of skill updates incorporated into performance evaluations. These measures will facilitate the transition of teachers from "experience-based" practitioners to "expert-level" educators.

**(2) Promoting the application of modern teaching methods and technologies**

Driving innovation in teaching methodologies and technologies is crucial for breaking through traditional constraints. Higher education institutions should establish modern educational technology platforms equipped with advanced tools like virtual simulation sports systems and motion capture devices, creating a "Digital Sports Teaching Resource Repository". They should provide technical training for micro-lecture production and online teaching platform usage, organize workshops on innovative teaching approaches, and promote project-based learning, flipped classrooms, and tiered instruction models. Educators should be guided to design interactive lesson plans tailored to course characteristics, such as blended teaching formats combining "classroom demonstrations + online corrections" or "group competitions + data analysis". Establish incentive mechanisms for teaching method innovation, set up special funds to support teachers' reform projects, regularly host teaching skills competitions and exemplary lesson showcases. To address limited physical resources, optimize course schedules by integrating "in-class instruction + extracurricular practice", leveraging campus sports clubs and athletic events to extend teaching reach while enhancing practicality and engagement.

**(3) Improve the teacher training and continuing education system**

To establish a comprehensive training system covering teachers' entire career development, we aim to enhance the relevance and effectiveness of continuing education. A dynamic research mechanism for teacher development needs will be implemented, utilizing annual surveys and interviews to collect training requirements. These insights will inform the design of modular curriculum systems encompassing teaching skill enhancement, innovative research methodologies, and emerging sports project development. Each module will feature three tiers: foundational courses, advanced courses, and seminar sessions. The innovative "diversified training model" combines "concentrated training + online learning + on-the-job practice," with concentrated sessions focusing on theoretical instruction. Online platforms provide bite-sized learning resources, while on-the-job practice involves field visits to model institutions. A tiered cultivation plan will be implemented: young teachers receive dual mentors (teaching and research supervisors) for three-year mentoring programs; mid-career teachers attend "key faculty workshops" to improve curriculum development and team leadership; senior teachers join "master teacher studios" for mentorship. A closed-loop evaluation system will assess training outcomes through pre-course tests, post-class assignments, and teaching practice tracking. Training performance will directly impact professional advancement and awards, with achievement recognition mechanisms rewarding teachers who effectively apply training content in their classrooms, creating a sustainable growth cycle.

**(4) Establish a scientific teacher evaluation and incentive mechanism**

Reconstruct a development-oriented evaluation and incentive system to stimulate teachers 'intrinsic motivation for professional growth. Improve the "diversified evaluation index system" by increasing teaching work weight to 50%, with specific indicators including the integration level of ideological and political education in courses, innovation in teaching methods, and improvement rate of students' physical health. In research evaluations, increase the weight of applied research achievements while recognizing practical outcomes such as teaching reform studies and exercise prescription development. Implement a "multi-stakeholder evaluation approach" through comprehensive assessments including student evaluations, peer reviews, supervisory evaluations, and self-assessments each semester. Utilize online evaluation platforms for real-time data aggregation. Optimize the "tiered incentive mechanism" by establishing tiered awards like "Teaching Rookie Award", "Distinguished Teaching Award", and "Teaching Achievement Award". Recipient teachers will enjoy benefits such as increased class hour subsidies and priority access to training. The "teaching performance first vote" system will be implemented in title evaluations, with exceptional teachers maintaining outstanding teaching performance for three consecutive years eligible for special promotion recommendations. Establish a "dynamic feedback and improvement mechanism" by providing personalized evaluation reports each semester containing strengths analysis, problem diagnosis, and improvement suggestions. Organize sharing sessions for outstanding teachers to facilitate targeted support, guiding educators to adopt a positive development orientation of "using evaluations to promote teaching and development".

**(5) Promoting teachers' initiative to participate in educational reform**

To transform teachers from mere reform implementers into designers and catalysts, we will establish a "Reform Participation Decision Platform" through the Sports Teaching Reform Committee. This committee, comprising teacher representatives, student representatives, and industry experts, will follow a "Teacher Proposal-Committee Review-Feedback Process" during critical decision-making phases like curriculum adjustments and training program revisions to safeguard educators' voice. A dedicated "Education Innovation Fund" will provide annual funding for initiatives such as sports-education integration, ideological education in curricula, and personalized teaching, offering full-process support from project evaluation to implementation and promotion. Outstanding projects will receive special rewards and priority inclusion in school reform pilots. The "Reform Achievement Mechanism" will showcase innovative practices through campus seminars and external exhibitions, collaborating with educational publishers to publish case studies and partnering with TV stations to produce instructional reform documentaries. Regular policy interpretation sessions and reform pioneer sharing events will help teachers understand reforms. Incorporating participation metrics into annual evaluations, we will prioritize teachers who actively contribute and demonstrate results in excellence awards, fostering an environment where "everyone embraces reform" to drive continuous advancement in sports education reform.

 **epilogue ：**

The professional development of physical education teachers in higher education institutions plays a pivotal role in the ongoing reform of sports education. The challenges faced by these educators stem from both inherent limitations in their professional growth and deficiencies in external support systems. By implementing strategies such as establishing knowledge and skill renewal mechanisms, innovating teaching methodologies and technological tools, improving training and evaluation frameworks, and motivating teachers to actively participate in reforms, we can effectively address current challenges. Moving forward, it is essential to strengthen the synergy between teachers' self-development awareness and external support systems, thereby creating a sustainable ecosystem for professional growth.

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