

Challenges and Pathways to Professional Development of Physical Education Teaching-Research Officers in the New Era for Primary and Secondary Schools

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Abstract: Using literature and logical analysis methods, this paper studies the dilemma and realization path of professional development of primary school physical education teachers and researchers under the new curriculum standard. Development connotation: Implementing the new curriculum standards and shouldering the important mission of upgrading teaching and research; serving new development and advancing the deepening reform of school sports; broadening new horizons and meeting the intrinsic need for self-realization; empowering high quality and promoting the development of regional teachers. Development challenges: The top-level design is insufficient, and an urgent need to enhance mechanism construction; unclear role positioning, requiring improvement in identity recognition; inadequate understanding of teaching, weak knowledge in physical education research; insufficient professional guidance, resulting in weakened effectiveness of educational research services. Implementation paths: Optimizing the top-level design and improving the construction of management mechanism; enhancing training platforms, elevating teaching and research capabilities; emphasizing curriculum leadership, strengthening professional identity recognition; fostering collaborative innovation, driving educational resource sharing.

Keywords: The Curriculum Standards for Physical Education and Health in Compulsory Education, Primary and secondary schools, Physical education teaching-research officers, Professional development

In November 2019, the ministry of education issued the *Opinions on Strengthening and Improving Basic Education Teaching and Research Work in the New Era*, which explicitly emphasized that "teaching and research is essential support for ensuring the quality of basic education", and put forward the basic conditions for teaching-research officers for the first time. Teaching-research officers are the main driving force for implementing school education reforms, undertaking responsibilities including guiding services, teacher development, instructional research, and bearing the weighty responsibility of enhancing the quality of regional education and teaching. In 2020 and 2022, the Ministry of Education respectively issued the *Curriculum Standards for Physical Education and Health in General High Schools (2017 Edition Revised in 2020)* and the *Curriculum Standards for Physical Education and Health in Compulsory Education (2022 Edition) (the New Curriculum Standards)*. These standards have taken "people with physical literacy" as a crucial orientation for the reform of the new curriculum standards, emphasizing the cultivation of students' key competencies and advancing the reform of physical education teaching and research. In these standards, it is highlighted that "teaching research and teacher training are effective means and approaches to implement the spirit and requirements of these curriculum standards, and they are important guarantees for improving the quality of curriculum design and implementation ^[1]." Additionally, a comprehensive plan for teaching research is laid out. Physical Education Teaching-research Officers are the pioneers of school physical education reform, playing a crucial role in achieving the "the four-sphere integrated plan" goals, implementing teaching reforms focused on "effective instruction, diligent practice, frequent competition," and promoting teacher development. At present, the new curriculum standards present new challenges to the officers' work. Meanwhile, under the background of the structural shortage of physical education teachers and the insufficient school-based teaching and research capabilities in China, it is more necessary to give full play to the role of physical education teaching-research officers as "bridges" and "guides" to

establish the basic path for the professional growth of physical education teachers in primary and secondary schools and the enhancement of school sports teaching. Therefore, in order to better realize core connotation of the new curriculum standards and related documents, and accelerate the professional development of primary and secondary school physical education teaching-research officers, by analyzing the implications, challenges, and realization paths of professional development under the new curriculum standards, we not only propel the in-depth growth of primary and secondary school physical education teaching-research, but also summarize methods and condense experiences for the construction of our country's physical education teaching-research workforce.

1. The Challenges of the Professional Development of Primary and Secondary School Physical Education Teaching-Research Officers under the New Curriculum Standards

1.1. Implementing the New Curriculum Standards and Bearing the Important Mission of Upgrading Teaching and Research

Physical education teaching-research officers are the policy executors and assist the educational administrative departments in building a bridge between theory and practice, as well as between policy and implementation [2]. The key to curriculum reform lies in practice, schools serves as the ultimate carriers for implementing the new curriculum standards, while teaching-research officers need to undertake specific guidance and service tasks. They integrate new policy concepts and content into school educational and teaching activities, engage in face-to-face and focused coordination with school physical education research mode reforms, and drive the high-quality construction of school-based teaching and research. On one hand, the officers need to serve school physical education decision-making, innovate research activities, guide schools in establishing and improving physical education management systems, enhance teachers' educational awareness and capabilities, and deepen activities like school-based and theme-based research. On the other hand, they need to integrate various educational resources, promote the overall elevation of regional research and scientific levels, and facilitate the practical implementation of the new curriculum standards in physical education classrooms. Since the enactment of the new curriculum standards, the promotion and practice of it cannot be separated from the promotion role of grassroots teaching-research officers. Physical education teaching-research officers focus on teaching practice, and their practical activities are based on teaching and assessment in line with the new curriculum standards. They carry out curriculum interpretation and teaching research around the goal of "effective instruction, diligent practice, frequent competition". They grasp the curriculum objectives for developing core competencies and use a scientifically rational approach to enable physical education teachers to become familiar with and put into practice the changes in the goals, content, formats, and assessment of the new curriculum standards. They transform grand and abstract ideas into specific and detailed teaching activities, such as large unit teaching and integrated teaching across different scales. From this point of view, the officers are the backbone of physical education curriculum and teaching reform, playing an irreplaceable role. Their core function lies in breaking down the barriers between theory and practice, clarifying the direction, ideas and connotations, and promoting the upgrading of physical education teaching and research.

1.2. Serve New Development and Promote the Deepening Reform of School Physical Education

The literal understanding of physical education teaching-research officers can be described as: teaching, research, and personnel, and physical education is the subject orientation of the teaching-research officer. Originating from front-line excellent teachers, physical education teaching-research officers serve as leaders in the development of local school physical education. They implement the school physical education direction and requirements guided by the fundamental task of cultivating virtues and nurturing individuals. They guide regional efforts in curriculum planning and teaching reforms, playing a crucial role in translating the goals of the four-sphere integrated plan into practical actions. The officers are learners and practitioners who deepen school physical education reform. They play a key role in enhancing faculty resources and promoting educational advancement as well as have an undeniable responsibility in leadership, assistance, guidance, and more. Their main contributions are as follows: Firstly, physical education teaching-research officers serve the school physical education reform in the new stage of development. They immerse themselves in the forefront of teaching reform, using the spirit of school physical education reform as the shared standard for high-quality physical education. They deeply understand the direction of school physical education reform, act on the new development philosophy, establish a new pattern of development for regional

school physical education, and lay a strong foundation for reform. Secondly, teaching-research activities focused on local training, management, and development of physical education curriculum constitute a new area of research and practice for physical education teaching-research officers. They collaborate to create regional sports characteristic brands, organize excellent teaching-research case studies and showcase teaching achievements to continually enhance the quality of physical education instruction. Thirdly, since the implementation of curriculum reforms, the supervisory role of teaching-research officers has been diminishing. It becomes even more necessary for these officers to contribute to the construction of regional school physical education visions, cooperative exchanges, and to exhibit heightened "professional service" traits. They guide and participate in educational and instructional reforms and experiments, facilitating the mutual exchange of educational resources inside and outside the school. This, in turn, promotes integrated development of school physical education among different regions and ultimately reflects as the deepening and advancement of curriculum reforms. Furthermore, physical education teaching-research officers possess acute insights. They can grasp the policy content of school physical education from a macro perspective, while also understanding the constituent elements and logical relationships within school physical education. Their role is vital in promoting balanced development of regional sports education and narrowing the gap between schools.

1.3. Explore New Horizons and Satisfy Intrinsic Needs for Self-Actualization

The term "*self-actualization*" originates from *Maslow's hierarchy of needs theory* and represents a process of self-development, specifically an individual's inherent potential is continuously realized. It emerges from life pursuits and purposes [3]. To teach without researching leads to shallowness, to research without teaching leads to emptiness. The most crucial task of teaching-research officers is to be perpetual learners, satisfying their intrinsic needs for self-fulfillment. From a practical perspective, physical education teaching-research officers serve as curriculum leaders and teaching experts. However, with the successive introduction of relevant national policies and regulations, and the study of new requirements, new curriculum standards, and teaching materials, adopting a learner's mindset and seeking learning from peer experts, scholars, and teachers have become essential requirements for the professional development of teaching-research officers. This approach is not only fundamental for their specialization but also a significant pathway to realizing their own self-worth. The core essence of self-actualization for physical education teaching-research officers encompasses three main aspects. Firstly, there's the need for recognition and acceptance, manifested as a sense of belonging and presence in adapting to new environments and integrating into new communities. This directly influences the future development of teaching-research officers and becomes a crucial initial step in their self-actualization. However, this need for recognition and acceptance is inseparable from their own teaching and research capabilities. Secondly, there's the need for professional development, which is closely tied to the career progression of teaching-research officers. Under the call for "teachers as researchers," the importance of the professional development of teaching-research officers becomes even more pronounced. Professional development becomes an essential path to self-actualization, primarily involving the enhancement of research and teaching capabilities through the implementation of policies and instructional guidance. This process involves continuous enrichment of subject knowledge and skills, improvement of instructional guidance abilities, and a gradual enhancement of professional competencies over an extended period of time. It entails acquiring corresponding professional qualities and wisdom, increasing the sense of accomplishment and influence, and progressively realizing the goals of career pursuit. The third aspect is the need for innovation, which manifests as a creative spirit of exploration. It involves applying theoretical outcomes to teaching practice and generating new achievements in the process of educational research. This exhibits individual capabilities and represents a continuous self-transcendence. It constitutes the spiritual essence of self-actualization for teaching and research officers, further highlighting the intrinsic value of their professional development in physical education.

2. The Dilemmas of Professional Development for Physical Education Teaching and Research Officers in Primary and Secondary Schools in the New Era

2.1. Lack of Top-level Design and Urgent Need for Mechanism Construction

Currently, the professional development of physical education teaching-research officers faces challenges due to the inadequate establishment of relevant institutional systems and the need for

improved supporting mechanisms. Some policies aimed at promoting the professional development of teaching-research officers have encountered difficulties in implementation. Firstly, there is a lack of specialized guidance documents for the professional development of teaching-research officers. *The Opinions on Strengthening and Improving Basic Education Teaching and Research Work in the New Era* issued by the Ministry of Education emphasizes the enhancement of teaching-research team construction. However, there is a shortage of standardized and normative supporting documents regarding how to implement and practically apply these standards. In the majority of regions, specific implementation methods, admission criteria, and clear systems have not been well-established. Secondly, the selection criteria and standards are often uniform. Due to the unique selection mechanism for teaching-research officers, the majority of physical education teaching-research officers have a background as physical education teachers [4]. They are often recommended by their superiors or internally promoted to become teaching-research officers. This selection method emphasizes their organizational and teaching abilities, rather than their professional qualities in teaching and research. As a result, it might not accurately assess their research, guidance, and service capabilities. Internal recommendations can indirectly reflect the candidates' interpersonal skills and ability to handle relationships effectively. However, this approach might still have a certain level of subjectivity, and the standardization and evaluation criteria for such selections are often vague and elusive. The third issue is the weakness of the reward and punishment mechanisms. In many provinces in our country, the assessment and evaluation system for physical education teaching-research officers at various levels of teaching-research offices mainly rely on quantitative indicators such as attendance and the quantity of teaching-research activities conducted. This assessment is typically carried out through two methods: self-assessment by the teaching-research officers and assessment by the leadership of the teaching-research office [5]. It's evident that the current assessment of physical education teaching-research officers focuses solely on prescribed indicators and tasks, neglecting the evaluation of their work quality and effectiveness. This can lead to a situation where there is an excessive emphasis on formality rather than actual results. Moreover, the assessment is mainly conducted by the teaching-research officers themselves and their immediate supervisors, lacking input from the school and other teachers to measure satisfaction and work performance. The assessment by immediate supervisors can easily be influenced by subjective feelings, leading to biased evaluations influenced by personal relationships. Additionally, the presence of the "feel-good factor" in self-evaluation leads to subjective biases, making it difficult to objectively and impartially recognize one's own shortcomings. This lack of objectivity accentuates the weaknesses of such a loose and lacking standardized evaluation system. Furthermore, inadequate research funding, superficial performance assessments, and the failure to differentiate performance levels have contributed to the weaknesses of the reward and punishment mechanisms. The incompleteness of the system and the lack of standardization in the institution have led to a lack of vitality and innovation within the team of physical education research and development officers.

2.2. Inaccurate Role Positioning and the Need for Enhanced Identity Recognition

The emergence of a role is invariably accompanied by role expectations and behavioral expectations. "Teaching and Research Officers" represent the integration of "teaching" and "research," and their role positioning inherently determines the interdisciplinary nature of their functions and the interactive nature of their responsibilities. Firstly, multiple identities impact the job positioning of physical education teachers. Physical education teaching-research officers are leaders in subject teaching construction and the "guiding officers" for subject teaching quality. Their role encompasses the responsibilities of leadership and management. However, advocating for localized school-based research and teacher professional development suggests removing the authoritative aspect from educational research officers, shifting the focus of research downward. This encourages a collaborative partnership between educational research officers and teachers. The intertwining of roles as educators and researchers, as well as the compatibility between roles as managers and practitioners, has led to some physical education research officers having an unclear understanding of their roles in research work. With roles intertwining and functions overlapping, the self-efficacy and enthusiasm of physical education research officers are likely to be severely compromised. This situation is detrimental to their personal development and the assurance of teaching quality. The second is the lack of clear role boundaries that lead to deviations in the self-perception of physical education research and development personnel. In recent years, driven by curriculum reforms, the working status of research and development personnel can be summarized as "busy, bewildered, and unclear" [6]. Under the influence of biased perceptions towards physical education, some district and county-level physical education research and development work has experienced a weakening and marginalization.

Additionally, factors such as lack of attention from leadership and excessive administrative duties have led to an administrative-oriented self-perception of physical education research and development personnel. Under the labels of "expert" and "leader," their identity has become blurred with their roles rooted in school-based research and development functions, ultimately becoming more akin to "administrators" within research institutions. They are gradually becoming a "floating, dispensable group" within this context [7], leading to a dilemma in terms of self-identity and professional development. The third challenge lies in the lack of a corresponding promotion mechanism that contributes to a sense of identity. Currently, the promotion system for educational research personnel still adheres to the primary and secondary school teacher title system. In practice, after becoming a research and development personnel, it becomes challenging for intermediate-level teachers to advance to higher-ranking positions such as associate senior or full senior titles [8]. The limited room for upward mobility and narrow channels for promotion contribute to the gradual emergence of professional burnout. Furthermore, issues such as the aging of physical education research and development personnel, inadequate compensation, and severe lack of funding are becoming increasingly prominent, constraining the depth and breadth of their work. The establishment of a high-quality and standardized physical education research and development team is an urgent matter.

2.3. Superficial Teaching Understanding and Inadequate Physical Education Research Knowledge

As an integral part of educational research system with Chinese characteristics, physical education researchers constitute a vital force in advancing physical education research. Essentially, physical education researchers are professional technical personnel, with teaching and research being their fundamental functions [9]. Since the introduction of the new curriculum, the role of physical education researchers has continuously expanded and supplemented, resulting in more guidance and service responsibilities. For instance, curriculum development, research projects, project management, and more have added to the scope of their duties. These changes also raise higher demands on the capabilities of physical education researchers. Possessing strong research abilities has become a crucial approach for physical education researchers to address new challenges. However, based on practical observations, there is room for improvement in the research capabilities of current physical education researchers. Firstly, their theoretical foundation is weak and their understanding of physical education curriculum is limited. The key characteristic of physical education researchers is their role as connectors between physical education theory and practice, policy and practice, and different aspects of practice. This process requires continuous research and reflection. While many physical education researchers are outstanding teachers selected from front-line positions, possessing strong teaching skills, a significant number have not fully transitioned to the elevated role of "researchers", lacking essential core competencies such as research, management, and theoretical innovation abilities that are necessary for researchers [10]. Especially, the lack of depth in foundational theory contributes to a deficiency in the ability to comprehend the intricacies of the physical education curriculum. Secondly, the absence of theoretical foundations leads to weak research capabilities among physical education researchers. They are noticeably less engaged in leading or participating in educational and research projects compared to other disciplines, which directly reflects a deficiency in their research abilities. The third challenge is a significant tendency towards empiricism. The primary role of physical education research officers is to address knowledge-based, technical, and methodological issues in physical education teaching. This nature of work requires a substantial reliance on practical experience to carry out tasks. However, some physical education research officers are content with their existing teaching understanding and experience. They approach their work guidance from the perspective of "experienced individuals," relying excessively on past teaching practical experience, without delving into deeper reflection and processing of that experience [11]. This results in the guidance content becoming more skill-based and experiential. Moreover, as basic education continues to evolve, the existing theoretical knowledge and research experience of research officers might not meet the demands of today's educational reforms. The inability to keep up with the changing requirements and the resulting gap between capacity and demands make it challenging for physical education research officers to effectively carry out their work.

3. Pathways to Achieving Professional Development for Physical Education Research and Instruction Specialists in Primary and Secondary Schools in the New Era

3.1. Optimizing Top-Level Design and Enhancing Management Mechanism Construction

The establishment of a comprehensive research and development system is crucial for high-quality research design and teaching development, showcasing the superiority of China's research and development system^[12]. Therefore, optimizing the top-level design for the professional development of physical education research and development personnel is the foremost essential for enhancing the curriculum leadership of physical education research and development personnel. Grasping and harnessing the fundamental value of physical education research and development personnel, focusing on cultivating a high-quality, specialized team of physical education research and development personnel, and consistent with national, provincial, and municipal research and development team construction guidelines, it is imperative to refine the criteria for admission and the selection and management mechanisms for physical education research and development personnel. Firstly, introducing specialized guidance documents and enhancing educational management systems to foster professional identity and enthusiasm among physical education research officers. Since there are still phenomena such as shifting, occupying, and losing the establishment of physical education teachers and researchers in some districts and counties, it is necessary to clearly define their identity and status, give sufficient policy support to physical education teachers and researchers, and issue corresponding macro guidance policies. For example, the Chongqing Municipal Academy of Education and Sciences issued the draft regulation on *Chongqing Professional Standards for Primary and Secondary School Teachers and Researchers*, which clarifies its positioning, direction, professional standards, and condition guarantee^[13]. The second approach involves defining the entry requirements and professional standards for physical education research officers. This entails specifying the admission criteria for physical education research officers at the provincial, municipal, district, and county levels, taking proactive measures to prevent potential issues. Approaching this from the perspective of the distinctive characteristics of the physical education and health discipline, and while meeting the essential requirements of political, educational, research, and ethical competence, further refining the entry conditions for physical education research officers is essential. For example, establishing fundamental requirements for physical education research officers based on aspects like vocational understanding, knowledge, research, management, teaching, guidance, and service. Furthermore, providing clear guidelines related to teaching experience, professional titles, honors, development, and satisfaction to ensure the enhancement of the professional competence of physical education research officers right from the outset. Thirdly, it is essential to establish performance evaluation criteria and an honor recognition system for physical education research officers. Emphasis should be placed on using evaluation to drive professional growth. The evaluation criteria should promote the development of research officers' knowledge and skills, considering both the "teaching" and "research" aspects. This comprehensive assessment should encompass aspects such as work quality, research contributions, collaborative guidance, and cooperation. Furthermore, a specialized honor system aligned with the performance evaluation should be developed.

3.2. Enhancing Training Platforms to Boost Teaching and Research Capabilities

In the face of fundamental reforms in basic education and the introduction of new curriculum standards, more new tasks and requirements are being placed on physical education research officers, making it imperative to enhance the training platform for their professional development. Therefore, education authorities at all levels need to strengthen the construction of training platforms for physical education research officers and develop targeted plans for their professional growth, accurately addressing their development needs. Firstly, there is a need to optimize the construction of training platforms for physical education research officers. Following the implementation of the new curriculum standards, research officers are experiencing heightened demands and challenges, demanding the creation of a training platform that aligns with these new development requirements and further enhances the efficiency of their training. Additionally, establishing a platform that fosters collaborative efforts among diverse stakeholders and facilitates multi-channel connections, enhancing the effectiveness of professional development for physical education researchers through exchanges and collaborations with various experts, scholars, and educators. For example, guiding the National Center for Educational Technology in the development of an intelligent teacher training platform to serve a large number of teachers' research and practice needs. Secondly, it is essential to establish a comprehensive mechanism to ensure the professional development of physical education researchers.

The construction of a platform for their professional development is a complex endeavor that requires the continuous advancement of multidimensional safeguard mechanisms. For instance, integrating the development of core competencies with specific practical training, formulating corresponding evaluation criteria, organizational structures, and management mechanisms for the training, and ensuring their unified implementation. Thirdly, it is essential to conduct specialized training activities for physical education researchers based on practical needs. By analyzing and addressing emerging issues in school physical education curriculum implementation and teaching processes, this approach effectively enhances the required professional knowledge and practical skills for physical education researchers. The content of such training should align with the new curriculum standards, center around the objectives and tasks of research work, and focus on addressing the "competence" gaps and policy directions for physical education researchers. Specialized training activities should encompass topics such as research methods in physical education teaching, core competencies in physical education, teaching strategies for comprehensive physical education units, interdisciplinary learning of physical education and health, and the "effective instruction, diligent practice, frequent competition" teaching model. The training methods should align with the job characteristics of educational researchers and return to the forefront of physical education classrooms. Utilizing approaches such as "seminars," "lesson observation and evaluation," and "workshops" will facilitate the professional development of physical education researchers, showcasing a practical orientation deeply rooted in classroom teaching. Furthermore, relevant research institutions should offer a diverse range of professional development modes for physical education researchers, nurturing multifaceted talents suitable for the new curriculum reform. For instance, options like thematic training and online seminars for physical education researchers can be implemented^[14].

3.3. Emphasizing Curriculum Leadership and Strengthening Professional Identity

Curriculum leadership by physical education research officers plays an essential role and constitutes a core aspect of their professional development. As physical education research officers, they need to possess both a strategic vision for effective curriculum leadership and a precise ability to carry out regional physical education curriculum research and educational reform design. Firstly, physical education research officers need to establish a proper "generalized physical education," deeply comprehend the overall requirements of curriculum reform, reflect on the unique nature of the physical education and health curriculum, understand the methods and values of physical education in character development, and then communicate their own ideas to schools or teachers. This assists teachers in enhancing their understanding of the curriculum and guides them in cultivating the right curriculum awareness and perspective. In this process, through "exchange, sharing, reflection, evaluation, summarizing, and improvement," they can further enhance their critical thinking and understanding of the curriculum and syllabus. The second aspect is that physical education research officers at different levels of primary and secondary schools tend to have personalized paths in their professional development. For instance, provincial-level physical education research officers place more emphasis on topic applications, project reforms, and dissemination of outcomes, showcasing a stronger research-oriented nature. On the other hand, municipal and county research officers pay closer attention to front-line routine teaching. Moreover, there are differences in work emphasis among research officers of different ages and genders. Given this, while enhancing the curriculum understanding of physical education research officers, it is crucial to consider their individual traits, support diverse curriculum comprehension and independent development, thereby fostering various scientific insights and directions for curriculum reform. The third aspect is that physical education research officers should study and promote the guiding principles and policies of curriculum reform in physical education and health. Moreover, they should also organize and lead a large number of physical education teachers to learn, practice, and implement relevant policy requirements. This further clarifies the direction and implementation methods of physical education curriculum reform, enhances research on regionally tailored physical education curriculum planning, increases the capacity for curriculum development, and optimizes school physical education curriculum. For example, integrating physical education curriculum with local ethnic culture and traditional Chinese culture, cross-linking and blending between courses and resources, and emphasizing the implementation of school-based physical education curriculum. In addition, the self-directed learning ability of physical education research officers is particularly important. They should continuously engage in policy learning and practical reflection, study relevant curriculum literature, delve into curriculum objectives, content, implementation, and assessment. They should actively participate in local curriculum planning and implementation initiatives like "One School, One Specialty" or "One School, Multiple Specialties," helping front-line teachers address curriculum-related and instructional challenges in practice.

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