

Exploring a Training Model for Developing the Practical Innovation Competence of Professional Degree Postgraduates in Physical Education: An Approach Based on “Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment”

Wei Guo, Biye Wang

Yangzhou University, Yangzhou 225009, Jiangsu, China

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: The development of a leading sporting nation and the integrated development of the sports industry have created new demands for the cultivation of sports professionals. To address existing weaknesses in professional-degree postgraduate education in physical education, this paper proposes the philosophy of “Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment” and develops a model grounded in professional competence, supported by interdisciplinary capacity, and oriented toward practical innovation. The model promotes a shift from specialized skill training to integrated practical and innovative competence, providing a framework for reforming professional-degree postgraduate education in physical education.

Keywords: Postgraduates of professional degree in physical education; Strengthening professional foundations; Promoting interdisciplinary empowerment; Practical-innovation ability; Talent-training model

Online publication: October 27, 2026

1. Problem statement

As China continues to advance the development of a leading sporting nation and upgrade its sports industry, the broader environment for sports development has undergone substantial changes^[1]. The expansion of areas such as national fitness, the Healthy China initiative, digital sports, and the integration of the sports industry has gradually transformed the traditional landscape of competitive sports and school physical education into one characterized by cross-sector integration and technology-driven development^[2-3]. Correspondingly, demands for sports talents have also changed. Society needs not only talents with solid professional skills, but also interdisciplinary professionals who can integrate multidisciplinary knowledge, apply modern technologies

to solve practical problems and drive practical innovation in sports ^[4].

Postgraduate education for physical-education professional degrees undertakes the important task of cultivating high-level applied sports talents. Different from academic-degree education centered on theoretical research, its training objectives place greater emphasis on knowledge application, practical capabilities and vocational adaptability ^[5]. Nevertheless, viewed from current training practice, the postgraduate training for physical-education professional degrees in some universities is still influenced by the academic-oriented training model. Certain deviations exist between curriculum systems, practical sessions, evaluation methods and the positioning of professional-degree training. On the one hand, the training process attaches great importance to professional theoretical learning and scientific-research training, yet insufficiently cultivates the capability to solve problems in real-world sports contexts. As a result, postgraduates show limited capacity for knowledge transfer and practical application. On the other hand, as sports keeps integrating with management, medicine, artificial intelligence, data science and other fields, the single knowledge structure of physical-education majors can hardly satisfy industrial-development demands ^[6]. Postgraduates need to strengthen further their interdisciplinary knowledge and capacity to apply relevant technologies ^[7]. Therefore, exploring training models that meet the talent demands of the new era and realizing the organic combination of deepened professional capabilities and expanded cross-boundary capacities has become an important direction for postgraduate education of physical-education professional degrees.

2. Understanding the philosophy of “strengthening professional foundations and promoting interdisciplinary empowerment”

Faced with shifts in the demand structure for sports talents, postgraduate training for physical-education professional degrees needs to re-examine the relationship between professional capabilities and comprehensive competencies. The philosophy of “Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment” emphasizes that sports professional training should neither pursue cross-disciplinary development at the expense of disciplinary foundations nor remain confined to traditional skill training while overlooking the evolving demands of future professional practice. The two aspects support each other and jointly constitute the foundation for the development of practical-innovation abilities.

“Strengthening Professional Foundations” stresses the construction of professional physical-education capabilities as the basis for talent cultivation. The discipline of physical education features strong practical attributes. Postgraduates of physical-education professional degrees are required to possess professional competencies in physical-education teaching design, sports-training guidance, social-sports services, competition organization and management, as well as sports-health promotion. Professional capabilities serve not only as the foundation for postgraduates’ career development, but also as an important prerequisite for practical innovation. Hence, the training process should promote postgraduates’ transition from knowledge mastery to knowledge application, and improve their ability to solve practical problems with professional knowledge.

“Promoting Interdisciplinary Empowerment” emphasizes capacity expansion built upon professional foundations. With the integrated development of the sports industry, practical sports problems present comprehensive and technology-oriented characteristics. For instance, the development of smart sports calls for talents equipped with capabilities in data analysis and the application of intelligent technologies ^[8]; sports-health services require the integration of knowledge from medicine, psychology and health management

^[9]; the development of the sports industry demands comprehensive competencies such as management and operation ^[10]. Therefore, the postgraduate training for physical-education professional degrees should break the boundaries of traditional disciplines, and improve postgraduates' knowledge-integration capacity and vocational adaptability through the construction of interdisciplinary curricula, application of modern technologies and participation in industry practice.

From the perspective of training logic, "Strengthening Professional Foundations" highlights professional depth and addresses fundamental problems in the development of sports talents. "Promoting Interdisciplinary Empowerment" emphasizes capacity expansion and responds to diverse demands of future career development. Jointly, they drive postgraduates of physical-education professional degrees to transform from specialized professionals to compound-type innovative talents.

3. Construction of practical-innovation-ability training mechanism for postgraduates of physical-education professional degree under the guideline of "strengthening professional foundations and promoting interdisciplinary empowerment"

3.1. Re-examining training objectives: Establishing training orientation for co-development of professional and innovative capabilities

Training objectives constitute the logical starting point of postgraduate education. The philosophy of "Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment" stresses that postgraduate education for physical-education professional degrees should break the traditional model centered on knowledge mastery and skill training, and pay closer attention to the development of postgraduates' practical-innovation abilities. Based on the applied attributes of professional-degree education, training objectives should shift from focusing on whether students have mastered professional knowledge toward focusing on whether they can comprehensively apply professional knowledge, interdisciplinary knowledge and technical means to solve practical problems in real-world sports contexts.

In the process of designing training objectives, the integration of professional-competence cultivation and vocational demands should be adhered to, and a training system for the progressive development of basic capabilities, comprehensive capabilities and innovative capabilities should be constructed. Among them, basic capabilities refer to mastery of professional theories, practical skills and professional norms; comprehensive capabilities mean the integrated application of physical-education knowledge and knowledge from related disciplines; innovative capabilities represent the ability to identify problems based on practical experience, put forward solutions and promote the transformation of practical achievements. Adjustments to training objectives should facilitate the shift of postgraduate education for physical-education professional degrees from knowledge transmission toward competence cultivation.

Meanwhile, differences in postgraduates' academic backgrounds and career planning should be taken into account, and a training system with certain flexibility should be established. Differentiated training paths should be designed according to the characteristics of different orientations such as physical-education teaching, sports training, social sports and the sports industry, so as to match postgraduates' professional strengths with career-development demands.

3.2. Optimizing the curriculum: Developing an integrated framework of professional development, interdisciplinary integration, and practical innovation

The curriculum system serves as a vital carrier for realizing training objectives. Faced with the trend of integrated development in the sports industry, the openness and interdisciplinarity of curricula for postgraduates of physical-education professional degrees still need to be enhanced. Therefore, the curriculum system should be optimized, centering on the cultivation of practical-innovation abilities.

In terms of professional deepening, efforts should be made to strengthen the construction of core physical-education courses and highlight the systematic nature and practical value of knowledge systems. Curriculum teaching should reduce pure theoretical lecturing. Through case-based teaching, situational teaching, task-driven learning and other approaches, professional knowledge should be combined with real-world sports scenarios to improve students' knowledge-application capabilities. In terms of cross-boundary integration, the interdisciplinary integration of physical education and related disciplines should be promoted. Contents such as artificial intelligence, big-data analysis, health management and educational technology should be incorporated into postgraduate training, enabling students to master methods of solving sports-related problems with multidisciplinary knowledge. In terms of practical innovation, the combination of curriculum learning and practical projects should be reinforced. Through project-based learning, case studies and practical workshops, postgraduates should be guided to take part in sports-event organization, sports-training-scheme design, implementation of health-promotion projects and sports-industry practice, transforming classroom knowledge into capabilities for solving practical problems.

Through the optimization of the curriculum system, a training structure should be formed in which professional courses consolidate foundations, interdisciplinary courses expand capabilities, and practical courses foster innovation, promoting the coordinated development of postgraduates' professional attainments and comprehensive competencies.

3.3. Improving the collaborative supervisor mechanism: Constructing a practical-innovation guidance system integrating on-campus and off-campus resources

Given the strong practical attributes of professional-degree education in physical education, supervision solely by on-campus supervisors can hardly fully satisfy the demands for cultivating postgraduates' practical capabilities. Hence, the collaborative-training mechanism of on-campus supervisors and industry supervisors should be further improved to promote the in-depth integration of university educational resources and industry-practice resources.

At the level of "Strengthening Professional Foundations", on-campus supervisors take primary responsibility for guiding postgraduates' development of professional capabilities. Relying on the disciplinary strengths of universities, on-campus supervisors help postgraduates build systematic professional-knowledge systems and enhance their mastery of professional theories and research-method capabilities. At the level of "Promoting Interdisciplinary Empowerment", industry supervisors should draw on their practical experience and resources and provide guidance and support for postgraduates in real-world vocational contexts. By participating in the design of training schemes, guidance on practical projects and competence evaluation, industry supervisors can help postgraduates understand industry-development trends and improve their vocational adaptability. Meanwhile, the participation of industry supervisors can make up for insufficient practical experience among university teachers, bringing postgraduate training closer to the actual demands of the sports industry.

Collaboration between on-campus and off-campus supervisors is not a simple increase in the number of supervisors, but the realization of complementary strengths among different participants. University supervisors focus on the cultivation of professional foundations and theoretical capabilities, while industry supervisors focus on the improvement of practical and vocational capabilities. Jointly, they facilitate postgraduates' transformation from learners of professional knowledge to solvers of practical problems. Mechanisms for supervisor communication, joint guidance and joint evaluation can be established to further strengthen coordination in postgraduate training.

3.4. Strengthening the construction of practical platforms: Building a real-situation-driven cultivation environment for innovative capabilities

The formation of practical-innovation abilities depends on real-world practical contexts. The discipline of physical education features distinct practical attributes. Only by participating in real-world sports activities and the process of solving practical problems can postgraduates realize the integrated development of knowledge, skills and innovative capabilities. Therefore, the construction of practical platforms should be further enhanced to provide postgraduates with multi-level and multi-field practical opportunities.

Universities should give full play to their resource advantages and strengthen cooperation with sports enterprises, sports associations, sports-training institutions and sports-service organizations to build postgraduate-training practical bases jointly. Through university-enterprise cooperation, joint-project construction and resource sharing, postgraduates can participate in real-world sports projects and improve their vocational competencies and innovative awareness in practice.

It should be noted that the construction of practical platforms cannot be simply equated with traditional internship arrangements. Traditional internships focus more on post-experience, whereas the cultivation of practical-innovation abilities lays greater stress on students' active exploration and problem-solving in practice. Hence, practical tasks should be designed around real-world demands to guide postgraduates to take part in the whole process, including project planning, scheme design, technology application, and effect evaluation. Practical training driven by real-world scenarios can promote postgraduates' competence improvement from knowledge learning to capability application and further to practical innovation.

3.5. Establishing a dynamic evaluation mechanism: Realizing whole-process monitoring for the cultivation of practical-innovation abilities

Scientific and effective evaluation mechanisms constitute an important foundation for guaranteeing training quality. Traditional postgraduate evaluation systems mainly focus on course grades, scientific-research outputs and thesis quality. For professional-degree postgraduates, such systems can hardly fully reflect their vocational competencies and practical-innovation levels. Accordingly, a dynamic evaluation system matching the characteristics of professional degrees needs to be established.

Under the training model of "Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment", the evaluation of practical-innovation abilities should focus on the capability-forming process and combine result-oriented evaluation with process-oriented evaluation. Evaluation contents include not only mastery of professional knowledge, but also postgraduates' capabilities in applying interdisciplinary knowledge, participation in practical projects and the formation process of innovative outputs.

In terms of evaluation subjects, the single-subject evaluation model dominated by on-campus teachers should be broken, and a multi-subject evaluation system should be constructed. On-campus supervisors mainly

evaluate professional capabilities and theoretical attainments; industry supervisors pay attention to practical capabilities and vocational adaptability; practical bases provide feedback from the perspective of real-world job performance. Meanwhile, postgraduates should be guided to conduct self-evaluation and learning reflection, and record the development of their capabilities through practical summaries and presentations of project outputs.

The dynamic evaluation mechanism can timely identify existing problems in the training process and adjust course contents, practical tasks, and training schemes according to evaluation results. It forms a cyclic mechanism of “training — evaluation — improvement”, and promotes the sustainable development of postgraduates’ practical-innovation abilities.

4. Conclusion

The construction of a leading-edge sporting nation and the integrated development of the sports industry have raised new requirements for sports-talent cultivation. Professional degree postgraduate education in physical education should respond to evolving societal demands and promote a shift from professional skill development toward the cultivation of comprehensive practical innovation competence. The philosophy of “Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment” stresses consolidating physical-education professional foundations while expanding interdisciplinary-integration and practical-innovation capabilities, and provides a conceptual framework for the reform of professional degree postgraduate education in physical education.

The training model constructed based on this philosophy realizes the organic integration of professional education and industry demands, knowledge learning and practical application, as well as competence cultivation and innovative development, through optimizing training objectives, improving curriculum systems, strengthening supervisor collaboration, building practical platforms and adjusting evaluation mechanisms. In the future, postgraduate education for physical-education professional degrees should further enhance the construction of industry-participation mechanisms, deepen the integration of digital technologies and physical-education, improve evaluation systems for practical-innovation abilities, and continuously raise the quality of talent cultivation.

On the whole, “Strengthening Professional Foundations and Promoting Interdisciplinary Empowerment” is not a simple replacement for traditional sports-talent-training models, but an optimized development built upon the distinctive characteristics of physical-education disciplines. By strengthening disciplinary expertise while expanding interdisciplinary capacity, this model may help cultivate highly qualified applied sports professionals with strong professional competence, practical capabilities, and innovative capacity.

Funding

Jiangsu Provincial Degree and Graduate Education Teaching Reform Project (Project No.: JGKT25_C108)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Wang J, 2025, Construction of Discipline of Physical Education With Chinese Characteristics: Course, Characteristics and Prospects. *Journal of Xi'an Physical Education University*, 42(5): 513–525.
- [2] Dong H, Zheng G, Wang J, 2026, Research on the Digital-Intelligent Development Path of School Physical Education Guided by the Strategy of Building an Educational Power. *Journal of Tianjin University of Sport*, 41(3): 277–284.
- [3] Ren B, 2026, Mechanisms and Countermeasures for the Impacts of Artificial Intelligence on Employment in the Sports Industry. *Sport Science*, 46(3): 57–69.
- [4] Wang H, Li H, 2026, Serving Social Demands: Research on High-quality-Development Paths for Postgraduate Education of Physical-Education Professional Degrees. *Journal of Tianjin University of Sport*, 41(3): 285–293.
- [5] Li S, 2026, Toward an Educational Power: The Three-fold Logic for High-quality Development of Professional-degree Postgraduate Education. *Jiangsu Higher Education*, (3): 40–46.
- [6] Wu J, Li N, 2026, From Disciplinary Classification to Interdisciplinarity: Impacts of Interdisciplinary Cooperation in Physical Education on Academic Discourse Power. *Sport and Science*, 47(1): 48–58+70.
- [7] Song J, Han H, Xu H, 2024, Value Implications, Practical Dilemmas and Alleviation Paths for the “Four-in-One” Training Model for Master’s Students of Physical-Education Professional Degrees. *Journal of Physical Education*, 31(2): 98–104.
- [8] Wang Q, Li J, Liang J, et al., 2026, How to Achieve High-quality Construction of Campus Smart Sports in China — An Analysis Based on 60 Smart-campus Demonstration Schools and Benchmark Schools for Basic-education Modernization Transformation. *Sport Science*, 46(3): 70–85.
- [9] Rong X, Li F, Tan J, 2024, Construction of Sports-rehabilitation Major Based on WHO Rehabilitation Competency Framework. *Chinese Journal of Rehabilitation Theory and Practice*, 30(6): 639–647.
- [10] Zhang R, 2022, Construction of Physical-education Disciplines From the Perspective of Sports-industry Development. *Journal of Beijing Sport University*, 45(7): 1–7.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.