WHIOCE PUBLISHING PTE. LTD.
PROVIDING
FIRST-CLASS SCIENTIFIC INFORMATION
FOR TOP SCHOLARS

2025 Volume 3, Issue 8
Contemporary Education Frontiers
ISSN (Online): 3029-1860 ISSN (Print): 3029-1879

Research on the Practical Dilemmas and Optimization Pathways of Physical Education in Primary and Secondary Schools under the Core Competencies Framework

Xiaolong Li[1], Xiaomiao Sheng[2]

[1]No.1 High School of Xixiang County, Hanzhong 723500, Shaanxi, China

[2]*Guangzhou Sport University, Guangzhou 510500, Guangdong, China*

Abstract: Physical education in primary and secondary schools is not only an essential component of the school education system but also a fundamental task for implementing moral education and cultivating talents. This study employs literature review and logical analysis methods to conduct an effective investigation into the practical dilemmas and optimization pathways of physical education from the perspective of core competencies. The findings reveal several critical issues: cognitive lag and disconnect between theory and practice in the functional transformation of the discipline; delayed content updates and difficulties in implementation within curriculum standards iterations; accumulated deviations and challenges in teaching objective setting; as well as strategy deficiencies and pathway confusion in the reorganization of teaching logic. The study concludes that clarifying the disciplinary positioning and reconstructing the educational value system, improving curriculum standards to precisely align teaching content, optimizing teaching objectives to enhance instructional system design capacity, and reshaping teaching pathways to build competency-oriented classroom paradigms can provide both theoretical support and practical guidance for physical education in primary and secondary schools.

Keywords: Physical education; Primary and secondary schools; Core competencies; Practical dilemmas; Optimization pathways

Online publication: September 26, 2025

1. Introduction

Physical education in primary and secondary schools is not merely a curricular subject but also a profound reflection of national strategic intentions, educational equity demands, and the holistic development of students. With policy documents such as the Physical Education and Health Curriculum Standards (2022 Edition) explicitly identifying physical education as a crucial component in moral education, emphasizing the principles of "teaching skills, diligent practice, and frequent competition", the goal is to promote students' all-round development. Despite the high policy emphasis, continuous optimization of curriculum standards, and the widespread acceptance of the "health first" educational philosophy, a significant gap remains between teaching quality and students' developmental needs in practice. Therefore, it is imperative

to approach the issue from the perspective of core competencies, responding to the demands of high-quality development in physical education under the new era. This requires a deep analysis of the current practical dilemmas in primary and secondary physical education and the exploration of scientific and effective optimization pathways. Such efforts not only address the practical needs for cultivating students' comprehensive competencies in the context of educational reform but also provide theoretical support and practical guidance for advancing the quality of physical education in school.

2. Current development status of physical education in primary and secondary schools under core competencies

2.1. Reconstruction and transformation of the disciplinary function of physical education

With the deepening of educational concepts in the new era, physical education, as an important component of quality education, has gradually transformed its disciplinary function from traditional physical training and skill transmission to an orientation focused on holistic development and character education. The national Physical Education and Health Curriculum Standards (2022 edition) explicitly advocate for core competencies as the guiding principle, emphasizing the comprehensive cultivation of students' physical fitness, motor skills, healthy behaviors, and sportsmanship. Physical education is no longer a mere instrumental subject aimed at "physical exercise" but has become a vital platform promoting students' overall development, sound personality formation, and social adaptability [1].

This transformation signifies that physical education shoulders a key role in the strategic goal of moral education, reinforcing the discipline's educational function, independence, and mission in the contemporary era [2]. However, in practice, the transformation of the disciplinary function faces challenges such as unclear cognition and lost direction at grassroots schools. Some schools still organize physical education with a utilitarian mindset, focusing on "exam preparation" and "standardized training". Among teachers, there exists inconsistent understanding of "core competencies in physical education", and teaching objectives often remain confined to skill training and exercise volume, neglecting the social, emotional, and humanistic aspects of physical education. Therefore, although the disciplinary function has been redefined at the policy level, its practical effectiveness still requires strengthening and guidance through multidimensional measures including updates in educational philosophy, teacher training mechanisms, and curriculum content reconstruction [3].

2.2. Updating and iteration of the curriculum standard system

Curriculum standards serve as the institutional foundation guiding the direction and content of physical education in primary and secondary schools. From the Physical Education and Health Curriculum Standards (2011 Edition) to the 2022 Edition, China's physical education curriculum standards have undergone a comprehensive shift from content-oriented goals to core competency-oriented objectives. The new standards highlight a three-dimensional core competency framework encompassing motor skills, healthy behaviors, and sports ethics, proposing phased and hierarchical implementation of competency cultivation tasks [4]. This promotes a shift in teaching content from "teaching skills" to "promoting development" and "cultivating character", thereby constructing a competency-oriented curriculum structure.

Despite systematic updates at the standards level, practical challenges persist in frontline teaching, including insufficient understanding, difficulty in transformation, and weak implementation. On one hand, many teachers lack deep comprehension of the new standards' concepts and the ability to translate curriculum goals into teaching tasks; on the other hand, lagging teaching resources, regional developmental imbalances, and outdated evaluation methods also hinder effective execution. The "paper value" of standards has yet to be effectively converted into "classroom value". The iteration of curriculum standards has not fully broken through existing teaching inertia, necessitating enhanced teacher training, establishment of regional teaching and research mechanisms, and provision of teaching exemplars to promote deeper integration with teaching practice.

2.3. Alignment and deviation of teaching objectives and content

Teaching objectives serve as the navigational system of instructional activities and should reflect the directional requirements for student development under core competencies. Within the new curriculum framework, teaching objectives are expected to precisely align with competency dimensions, facilitating students' comprehensive growth in "learning to move", "loving movement", "active participation", and "acquiring healthy lifestyles". However, due to the deeply rooted "skill-centered, competency-neglected" teaching logic, objectives are often overly generalized, lack competency orientation, or deviate in content, severely constraining improvements in teaching quality and the achievement of competency goals.

Many teachers persist with a "skill-oriented" mindset focused on mastering movements and improving fitness, overlooking students' cognitive, emotional, and attitudinal development [5]. Moreover, disconnects between objectives and teaching content are widespread, with many lesson plans relying on outdated routines that lack situational design, task-driven approaches, and diversified assessments, thereby failing to truly support competency development. This "objective-content mismatch" is particularly prominent in lower grades and rural schools. Hence, scientific setting of teaching objectives and precise matching with content are critical for implementing physical education core competencies. Strengthening objective-setting training, building collaborative research platforms, and promoting instructional design to move from "formally reasonable" to "goal achievement" are imperative.

2.4. Differentiation and reorganization of teaching logic paths

Under the guidance of core competencies, the organization, instructional processes, and classroom structure of primary and secondary physical education are undergoing profound changes. Traditional teaching follows a linear path of "explanation–demonstration–practice–evaluation", emphasizing teacher dominance and skill transmission. Conversely, competency-oriented teaching emphasizes student agency, problem-solving skills, and contextual experience, highlighting the situational, interactive, and generative nature of the instructional process. This reorganization reflects a shift from linear teaching to task-driven models, from single skill acquisition to integrated competency development, and from passive imitation to autonomous construction, marking the modernization of the physical education classroom paradigm [6].

Nevertheless, practical challenges remain: teachers lack support for new paradigms, have insufficient curriculum design experience, and struggle with mismatched evaluation methods, resulting in instructional processes that often "deviate" or "break down". Some teachers recognize the importance of competency orientation but are unable to break free from traditional instructional paths in practice, leading to new objectives but old methods, which hinders the realization of competency development logic in classrooms. To overcome these issues, an integrated support system combining "concepts–methods–tools" must be established. Strengthening teachers' systemic understanding of instructional process restructuring, exploring stage-appropriate teaching models and paradigms, and promoting classroom transformation from "lecture-practice combination" to "task-driven—collaborative inquiry—situational experience" are essential steps forward.

3. Practical dilemmas of physical education in primary and secondary schools under core competencies

3.1. Cognitive lag and disconnection from practice in the functional transformation of the discipline

Within the core competencies framework, the function of physical education has expanded from traditional "physical training" to become a key carrier integrating moral, intellectual, physical, aesthetic, and labor education. However, in current practice, teachers, administrators, and even some policymakers still hold superficial understandings of this transformation, with vague recognition of PE's educational value, resulting in its marginalization within the curriculum system. Particularly in some regions and under-resourced schools, PE classes are often replaced by other subjects, suffer from insufficient resource allocation, and receive low administrative attention, limiting the full realization of PE's educational functions. Meanwhile, PE teachers generally face slow updates in teaching philosophy and lack

systematic mastery of core competency concepts, making it difficult to integrate goals that promote students' holistic development into teaching practice. Some educators still focus predominantly on "technical and tactical training" and "PE exam preparation", with teaching processes lacking contextualization and goal orientation, which leads to formalistic, instrumental, and utilitarian PE teaching. Although the concept of disciplinary functional transformation is clear, effective translation from policy advocacy to practical implementation remains inadequate, exhibiting a significant dual gap of "cognitive lag and practical disconnection".

3.2. Content update delay and implementation difficulties in curriculum standards iteration

The new Physical Education and Health Curriculum Standards led by core competencies systematically update curriculum goals, content structure, learning methods, and evaluation mechanisms, aiming for fundamental transformation of PE teaching philosophy and approach. However, at the implementation level, rapid curriculum standard updates outpace teacher training and teaching research follow-up [7]. Many teachers still face obstacles in understanding and applying new standards, with unclear grasp of the "three-dimensional core competencies" framework, preventing effective instructional design based on it. This "knowing what but not why" phenomenon is a major barrier to extending curriculum reform into classroom practice. Furthermore, slow updates to teaching materials, incomplete regional teaching research systems, and outdated evaluation methods also weaken the practical guiding power of new standards. Particularly in rural and remote schools, lack of teaching resources forces implementation to rely heavily on individual teacher experience, lacking systematicity and standardization, resulting in standards becoming "suspended". These difficulties hinder the translation of advanced curriculum concepts into concrete, actionable teaching practices, thereby limiting the depth of PE teaching reform in primary and secondary schools [8].

3.3. Accumulated deviations and implementation challenges in teaching objective setting

Under the guidance of core competencies, teaching objectives should embody PE's multidimensional educational functions, covering knowledge comprehension, skill development, and value formation to truly achieve moral and character education. However, in practice, many PE teachers in primary and secondary schools still tend to prioritize "skills over competencies", habitually setting objectives based on traditional content and neglecting connections to students' cognitive, emotional, and behavioral development [9]. For example, some instructional designs restrict objectives to "mastering specific motor skills" or "completing physical fitness tests", lacking systematic consideration of comprehensive competency improvement. Moreover, inconsistencies among teaching objectives, content, and evaluation methods significantly contribute to implementation difficulties [10]. Teachers often copy curriculum standard language as objectives but fail to find effective classroom support, causing a disconnect between objectives and teaching activities, which leads to unmet goals and assessable instruction. This "objective setting–instructional execution" break weakens the effectiveness of competency-oriented PE classrooms, further amplifying the theory-practice gap and highlighting the urgent need for enhanced teacher professional competence.

3.4. Strategy deficiency and path confusion in teaching logic reorganization

To meet the new demands of competency-oriented education, physical education in primary and secondary schools must shift from traditional linear, closed teaching logic toward diverse, open instructional models. However, in practice, teachers often face a lack of strategies and confusion in methods when organizing instruction. On one hand, many teachers have yet to establish a competency-oriented instructional process framework centered on "problem-driven, contextual creation, task implementation, and reflective evaluation", and continue to use the old "explain—imitate—practice—test" approach, resulting in classrooms that lack generativity and initiative. On the other hand, although new teaching models are advocated, insufficient effective case guidance and training support leave many teachers "willing but unable to change". Moreover, inadequate teaching resource support systems further obstruct teaching logic reorganization. Many schools lack equipment, curriculum modules, and digital resources aligned with competency orientation, causing teachers to struggle

when attempting to implement innovative activities. Additionally, outdated evaluation methods fail to comprehensively reflect student competency development, exacerbating teacher confusion and leading to unsatisfactory classroom outcomes. Therefore, reorganizing teaching logic requires not only updated teacher philosophies but also the establishment of a comprehensive instructional support system that provides systematic strategies, paradigms, and technical tools to effectively support core competency implementation.

4. Optimization pathways for physical education in primary and secondary schools under core competencies

4.1. Clarifying disciplinary positioning and reconstructing the educational value system

Within the broader context of education reform guided by core competencies, it is essential to further clarify the positioning of physical education, liberating it from the traditional perception as a "supplementary subject" and establishing its core status as a key arena for students' holistic development, physical and mental health, and character formation. Educational authorities should issue more actionable policies that reinforce PE's multifaceted functions in "moral education, intellectual enlightenment, physical strengthening, and mental health", promoting a return to the educational essence of school physical education. At the school level, the structural value of PE within the educational system should be strengthened by integrating it into overall school education goals and curriculum design, thereby correcting the longstanding bias of prioritizing intellect over physical development. Simultaneously, through advocacy and teacher training, frontline educators should be guided to fully comprehend the goals, content, and pedagogical transformation pathways of PE teaching under the core competencies framework, enhancing their sense of identity and mission regarding the discipline's function. Teachers are expected not only to impart skills but also to use physical activities to help students understand rules, learn cooperation, and cultivate positive life attitudes. This cognitive renewal will fundamentally break the constraints of traditional utilitarian views on PE and promote a systemic transformation toward "moral education and talent cultivation" in primary and secondary school PE teaching.

4.2. Improving curriculum standards to precisely align teaching content

Curriculum standards serve as a vital lever to implement educational philosophies. The key to optimization lies in further refining the structural system of the Physical Education and Health curriculum standards to enhance their foresight, operability, and regional adaptability. Building on existing foundations, the specific performance levels of "core competencies in PE" should be detailed, taking into account students' physical and psychological characteristics and developmental needs at different stages, clearly defining progressively layered teaching content, learning tasks, and evaluation indicators for each educational level. Moreover, a dynamic updating mechanism for curriculum standards should be reinforced, utilizing big data, lesson study, and empirical feedback to continuously optimize standard content and implementation strategies. Additionally, the implementation of curriculum standards requires strengthening the connection between teacher training and school-based curriculum development. On one hand, multi-level teacher professional development systems should translate core competency concepts into concrete instructional designs and classroom practice skills. On the other hand, localities should be encouraged to develop PE curriculum modules with regional and school-based characteristics in accordance with national standards, constructing a teaching content system characterized by "standard-led—school-based innovation—individualized development". By precisely matching teaching practice with students' growth needs, the practical guidance effectiveness of curriculum standards can be enhanced.

4.3. Optimizing teaching objectives and enhancing instructional system design capacity

Teaching objectives are the soul of classroom instruction. Under the guidance of core competencies, PE teaching objectives in primary and secondary schools must transcend "motor skill completion" or "test achievement" levels, expanding into multidimensional structures covering knowledge comprehension, behavioral habits, emotional attitudes,

and value judgments to systematically support students' holistic development. Teachers should proficiently master techniques for objective decomposition and hierarchical construction, designing instruction around four core dimensions: "physical participation, motor skills, healthy behaviors, and sportsmanship", and clarify stage-specific objectives guided by behavioral performance. Consequently, strengthening teacher training in objective construction and instructional design is necessary to ensure consistency among "objectives—content—methods—evaluation". By providing exemplary lesson models, digital teaching tools, and evaluation templates, abstract core competency requirements can be transformed into concrete, actionable classroom behaviors. Regional teaching research institutions should enhance their leadership role to guide teachers in combining process-oriented and generative objectives in teaching design, avoiding tendencies toward "objective virtualization" or "empty cycling", thereby achieving a systematic transition from "teaching knowledge" to "cultivating competencies".

4.4. Reshaping teaching pathways and constructing competency-oriented classroom paradigms

There is an urgent need to shift physical education from the traditional "training—testing" logic to a competency-oriented classroom paradigm of "inquiry—construction—reflection". The core of pathway reshaping lies in establishing instructional process structures that meet core competency development requirements, emphasizing systematic application of strategies such as contextual creation, problem orientation, collaborative inquiry, and interdisciplinary integration. Specifically, methods such as "task-driven teaching", "thematic activity courses", and "project-based learning" can situate PE teaching in authentic contexts, guiding students to actively explore, deeply engage, and reflect in activities, thereby internalizing PE knowledge and generating competencies. Moreover, integrating information technology is a crucial breakthrough in optimizing teaching pathways. Utilizing AI, big data, video feedback, and other digital technologies can provide real-time guidance and multidimensional assessment to enhance instructional efficiency and personalization. Simultaneously, school-based teaching research systems should be improved by establishing professional learning communities based on "teacher collaboration—classroom observation—action reflection", promoting innovative teaching practices and continuous optimization. By constructing scientifically sound, reasonable, generative, and developmental teaching pathways, the "deep embedding" and "rooting" of core competencies in PE classrooms can be truly realized.

5. Conclusion

This study, guided by the framework of core competencies, systematically reviewed the current development status, practical dilemmas, and optimization pathways of physical education in primary and secondary schools from the perspectives of policy guidance, curriculum standards, teaching objectives, and implementation pathways. Several key conclusions can be drawn from the findings: First, physical education under the core competency orientation is undergoing a profound transformation from a "knowledge–skill" focus to a "competency–behavior" focus; however, the actual teaching system still faces multiple contradictions such as objective deviation, unclear pathways, and lagging evaluation. Second, the root causes of these dilemmas lie in the coexistence of cognitive biases and structural barriers. There is a significant gap in teachers' understanding of core competency concepts, and teaching design and execution largely follow traditional models, lacking supportive mechanisms and resource guarantees for competency development. Third, addressing these challenges hinges on reconstructing the discipline's essential functions, advancing the refinement of curriculum standards, enhancing instructional precision, and transforming classroom paradigms to build a unified, systematic, practical, and developmental reform pathway for physical education.

In summary, only through a genuine and comprehensive transformation oriented toward core competencies can physical education in primary and secondary schools truly fulfill its epochal mission of empowering students' physical and mental health growth and lifelong development.

Funding

Shaanxi Province's 14th Five-Year Plan Education Science "Research on the Current Challenges and Paths of Physical Education Teaching in Primary and Secondary Schools under the Framework of Core Competencies" (Project No.: SGH24Q279)

Disclosure statement

The authors declare no conflict of interest.

References

[1] Liu H, Yin Z, Wan X, et al., 2024, Theoretical Interpretation, Practical Value, and Design Pathways of Large-Unit Teaching in Physical Education Oriented Toward Core Competencies. Journal of Guangzhou Sport University, 44(05): 88–96.

[2] Xue Z, Gao S, Ma D, 2023, Theoretical Reflections, Logical Starting Points, and Pathway Suggestions for Implementing Core Competencies in Physical Education and Health Teaching. Journal of Physical Education, 30(04): 81–89.

[3] Yin Z, Zhang L, Jiang J, et al., 2023, Construction and Implementation Strategies of the Discourse System for Physical Education and Health Teaching Guided by Core Competencies in the New Era. Journal of Capital University of Physical Education and Sports, 35(04): 391–400.

[4] Zhu Y, Liu C, 2023, Physical Education and Health Teaching Design Oriented Toward Core Competencies: A Review of Physical Education and Health Teaching Design Guided by Core Competencies. Chinese Journal of Education, 2023(04): 135.

[5] Shao W, He L, Zou X, et al., 2023, Logic and Strategies for Integrating Core Competencies into Physical Education Classroom Teaching: From the Perspective of the 2022 Curriculum Standards. Journal of Capital University of Physical Education and Sports, 35(01): 10–20.

[6] Zhang L, Yang H, 2023, Analysis of the Connotation, Clarified Value, and Strategy Choices of Big Issue Teaching Under the Core Competencies Orientation of Physical Education and Health. Journal of Capital University of Physical Education and Sports, 35(01): 49–56.

[7] Zheng Z, 2022, Practical Exploration of the Connection Between Physical Education Teaching in Kindergartens, Primary and Secondary Schools Under the Background of Core Competencies: A Study Based on a Nine-Year Consistent School. Educational Theory and Practice, 42(32): 59–61.

[8] Zhang Z, Ma L, Yin Z, 2022, Teaching Design for Physical Education Oriented Toward Core Competencies: Theory, Pathways, Problems, and Strategies. Journal of Beijing Sport University, 45(03): 58–68.

[9] Shao W, Li H, Qi J, et al., 2020, Ways, Dilemmas, and Strategies for Connecting Core Competencies of Physical Education with Teaching Objectives. Journal of Physical Education, 27(06): 90–96.

[10] Xu W, Yao L, 2020, New Paradigms for Physical Education Teaching Guided by Core Competencies. Journal of Beijing Sport University, 43(07): 47–57.