

Core Competency-Oriented Reform of University Physical Education Teaching Model: Theoretical Framework and Practical Pathways

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Abstract: This study delves into the core competency-oriented reform of university physical education teaching models, constructing a theoretical framework and proposing specific practical pathways. It finds that traditional university physical education models overly emphasize skill training while neglecting the cultivation of students' core competencies, failing to meet student needs and societal expectations. The core competency-oriented reform aims to enhance students' physical and mental health, social adaptability, and lifelong learning capabilities through diversified course offerings, experiential learning, project-based learning, and the application of modern information technology. The study also highlights that establishing a comprehensive and objective evaluation system and a home-school-community collaboration mechanism is crucial for ensuring the effectiveness of the reform. These measures not only improve students' overall qualities but also promote educational innovation and development, enhancing the competitiveness and reputation of universities.

Keywords: Core Competency; University Physical Education; Teaching Model Reform; Theoretical Framework; Practical Pathways.

1. Introduction

In recent years, the wave of educational reform has swept across universities nationwide, making the reform of university physical education (PE) teaching models an essential component. Traditional university PE teaching models are no longer sufficient to meet the needs of students and societal expectations. As society evolves and higher education transforms, the reform of university PE teaching models has become an urgent task. The background of this reform lies in the shift from "knowledge education" to "quality education" in higher education. This transformation requires university PE teaching models to move from a focus on "skill training" to "quality cultivation."

The significance of reforming university PE teaching models lies in its ability to help students develop the skills and values needed to adapt to societal changes, thereby achieving the goals of higher education. Such reforms can promote the comprehensive development of students, enhancing their physical health, mental well-being, and social adaptability. Additionally, reforming university PE teaching models can foster educational innovation and development, improving the competitiveness and reputation of universities.[1]

1.1. Importance of Core Competency-Oriented Reform in University Physical Education

Core competencies refer to the key abilities and values that individuals exhibit in their learning, life, and work. A core competency-oriented reform of university PE teaching models aims to cultivate these core competencies in students. This type of reform helps students develop the skills and values necessary to adapt to societal needs, thus achieving the goals of higher education.

The importance of core competency-oriented reform in university PE teaching models lies in its ability to help students develop critical core competencies such as

innovation, entrepreneurship, and social responsibility. Moreover, this reform can drive educational innovation and development, enhancing the competitiveness and reputation of universities.

1.2. Research Objectives

This study aims to construct a theoretical framework based on core competency-oriented reform of university PE teaching models and explore its practical implementation pathways. Specifically, it will:

Theoretical Analysis: Examine the impact of core competency orientation on university PE teaching model reform and analyze existing literature on the integration of core competencies and PE teaching.

Case Studies: Investigate the experiences and outcomes of core competency-oriented teaching models in different universities, summarizing successful practices and challenges faced.

Operational Guidelines: Provide actionable guidelines for other universities to adopt and implement core competency-oriented PE teaching models.

By addressing these objectives, this study seeks to offer a comprehensive understanding of the core competency-oriented reform of university PE teaching models and provide practical insights for educational institutions.

2. Literature Review

2.1. Concept and Connotation of Core Competencies

Core competencies refer to the foundational abilities and attitudes that individuals must possess when facing complex and changing life situations. These competencies encompass multiple dimensions, including cognitive abilities, emotional attitudes, and social behaviors. They also include key skills such as innovation, critical thinking, and teamwork. The

cultivation of core competencies is crucial for an individual's lifelong development, helping them better adapt to societal changes and solve real-world problems. In the field of education, core competencies have become a significant standard for measuring educational quality, particularly in primary and higher education, where the development of core competencies is widely recognized as a key direction for educational reform.[2]

2.2. Current Status and Issues of University Physical Education Teaching Model Reform

Currently, the teaching model of physical education in Chinese universities faces numerous challenges. On one hand, traditional PE instruction places excessive emphasis on skill training, often overlooking students' individual needs and interests. This approach results in low student engagement and a lack of intrinsic motivation. On the other hand, the curriculum is often too narrow, failing to cater to the diverse sports preferences of students, which in turn affects the effectiveness of PE teaching. Furthermore, the evaluation system is overly simplistic, primarily relying on skill test scores, and fails to comprehensively reflect students' physical literacy and overall capabilities. These issues not only hinder the cultivation of students' interest in sports but also impede their holistic physical and mental development. Therefore, a profound reform of the university PE teaching model is urgently needed to meet the requirements of modern educational development.[3]

3. Theoretical Framework for Core Competency-Oriented Reform in University Physical Education Teaching Models

3.1. Three Dimensions of Core Competencies

Core competencies refer to the essential abilities and values that individuals demonstrate in their learning, life, and work. These are typically divided into three main dimensions: knowledge, skills, and values.

Knowledge: The knowledge dimension involves the basic theoretical and specialized knowledge that students should possess in the field of physical education. This includes understanding subjects such as human anatomy, exercise physiology, and sports psychology, as well as mastering the rules and techniques of various sports. Through systematic theoretical learning, students can better understand the scientific principles behind physical activities, laying a solid foundation for practical operations.

Skills: The skills dimension focuses on the practical operational and application abilities that students exhibit in physical activities. This includes mastering motor skills, improving body coordination and flexibility, and developing teamwork and leadership skills. Through a variety of sports activities and practical projects, students can continuously enhance their athletic abilities and overall qualities.

Values: The values dimension emphasizes the emotional attitudes and social responsibilities that students develop through physical activities. This includes recognizing healthy lifestyles, respecting the spirit of fair play, and valuing teamwork and mutual support. Through moral education and humanistic care in sports activities, students can establish correct values and cultivate a positive attitude towards life.

3.2. Three Levels of Reform in University Physical Education Teaching Models

Reform in university physical education teaching models can be systematically implemented at three levels: teaching content, teaching methods, and teaching evaluation, to achieve comprehensive core competency development.

Teaching Content:

Diversified Course Offerings: Introduce a wider range of sports activities, including traditional sports (basketball, soccer, table tennis), emerging sports (rock climbing, skateboarding, yoga), and outdoor adventure activities (hiking, camping, orienteering) to meet the diverse interests and needs of students.

Interdisciplinary Integration: Combine physical education with other disciplines (such as psychology, sociology, management) to conduct interdisciplinary teaching, helping students understand and apply sports knowledge from multiple perspectives.

Health Education: Increase content related to health education, such as nutrition, mental health, and disease prevention, to help students establish a scientific health perspective and lifestyle.

Teaching Methods:

Experiential Learning: Engage students in practical activities and experiential learning to gain knowledge and skills. For example, organize outdoor adventure activities and team competitions to enhance practical abilities and teamwork.

Project-Based Learning: Design challenging sports projects to guide students in independent inquiry and problem-solving. For instance, have students plan and implement a school sports event to develop organizational and innovative skills.

Technology Application: Utilize modern information technology tools, such as virtual reality and online platforms, to enrich teaching methods and improve effectiveness. For example, use VR technology to simulate real sports scenarios, helping students better master athletic techniques.[4]

Teaching Evaluation:

Diverse Evaluation: Establish a comprehensive and objective evaluation system that assesses not only students' skill levels but also their emotional attitudes, teamwork, and social adaptability. For example, combine formative and summative evaluations to fully reflect students' overall performance.

Personalized Feedback: Provide personalized feedback and guidance based on each student's characteristics and progress, helping them identify and address issues promptly. For example, conduct regular individual interviews and maintain growth records to track students' academic progress and psychological state.

Self-Assessment: Encourage students to self-assess, fostering their ability to reflect and manage themselves. For example, require students to keep a sports journal to document their learning experiences and achievements.

3.3. Constructing a Theoretical Framework for Core Competency-Oriented Reform

Based on the above analysis, this study constructs a theoretical framework for core competency-oriented reform in university physical education teaching models. The framework primarily includes the following key elements:

Student-Centered Approach:

Personalized Needs: Fully consider students' interests and needs, design a variety of physical education courses to meet the development goals of different students.

Autonomous Learning: Encourage students to independently choose sports activities and learning content, fostering their ability to learn and manage themselves.

Experiential Learning:

Practical Activities: Engage students in a wide range of sports activities and practical projects to gain knowledge and skills, and develop practical abilities and teamwork.

Scenario Simulation: Use modern technologies like virtual reality to simulate real sports scenarios, helping students better understand and apply sports knowledge.

Diverse Evaluation:

Comprehensive Assessment: Establish a comprehensive and objective evaluation system that assesses not only students' skill levels but also their emotional attitudes, teamwork, and social adaptability.

Personalized Feedback: Provide personalized feedback and guidance based on each student's characteristics and progress, helping them identify and address issues promptly.

Self-Assessment: Encourage students to self-assess, fostering their ability to reflect and manage themselves.

Teacher Professionalization:

Professional Training: Regularly organize professional training for teachers to enhance their teaching philosophy and skills, ensuring high-quality teaching.

Innovative Teaching: Encourage teachers to adopt innovative teaching methods and technological tools to improve teaching effectiveness. For example, develop multimedia teaching resources and use online platforms for remote teaching.

Home-School-Community Collaboration:

Home-School Communication: Establish communication mechanisms between home and school, hold regular parent meetings to understand students' learning situations and family support, forming a positive interactive relationship.

Community Resources: Utilize community resources, such as sports venues and parks, to conduct extracurricular sports activities, enriching students' sports experiences.

Social Support: Seek government and societal support to provide policy and financial guarantees for university physical education reform.[5]

3.4. Summary of the Main Content and Significance of the Theoretical Framework

Main Content:

Student-Centered Approach: Design diverse physical education courses based on students' needs and interests to meet their development goals and foster autonomous learning and self-management.

Experiential Learning: Engage students in practical activities and scenario simulations to gain knowledge and skills, and develop practical abilities and teamwork.

Diverse Evaluation: Establish a comprehensive and objective evaluation system, provide personalized feedback and guidance, and encourage self-assessment to fully reflect students' overall performance.

Teacher Professionalization: Enhance teachers' professional levels, encourage innovative teaching methods and technological tools, and ensure high-quality teaching.

Home-School-Community Collaboration: Establish communication mechanisms, utilize community resources, and seek government and societal support to form a

collaborative effort to promote the development of students' core competencies.

Significance:

Promote Comprehensive Development: Core competency-oriented reform in university physical education not only focuses on students' physical health but also emphasizes their mental health, social adaptability, and lifelong learning abilities, contributing to their comprehensive development.

Enhance Teaching Quality: Through diversified course offerings, experiential learning, and diverse evaluation, improve teaching quality and student learning outcomes, increasing student engagement and intrinsic motivation.

Drive Educational Innovation: The theoretical framework encourages teachers to adopt innovative teaching methods and technological tools, promoting innovation and development in university physical education, and enhancing the competitiveness and reputation of universities.

Form an Educational Synergy: Through home-school-community collaboration, form a multi-party synergy to jointly promote the development of students' core competencies, cultivating more well-rounded talents with high moral, intellectual, physical, aesthetic, and labor qualities.

In summary, core competency-oriented reform in university physical education is a systemic project that requires the joint efforts and support of the government, schools, families, and society. Through this reform, not only can the quality of university physical education be improved, but it can also promote the comprehensive development of students, nurturing more high-quality talents to meet societal needs.[6]

4. Implementation Pathways for Core Competency-Oriented Reform in University Physical Education Teaching Models

4.1. Introduction to Practical Cases

In recent years, several universities in China have initiated reforms in their physical education (PE) teaching models, guided by the principle of core competency development. A notable example is a university in Beijing, which has adopted the educational philosophy of "Healthy Living and Holistic Development." This institution has implemented a series of measures to drive reform, including:

Diversified Course Offerings: The university has introduced emerging sports such as rock climbing and skateboarding, alongside traditional sports like basketball and football, to cater to a wide range of student interests.

Interdisciplinary Integration: By incorporating knowledge from psychology and sociology into PE, students are encouraged to understand and apply sports knowledge from multiple perspectives.

Experiential Learning: The university organizes outdoor adventure activities and team competitions, allowing students to gain practical skills and foster teamwork through hands-on experiences.

Diverse Evaluation System: A comprehensive evaluation system that combines formative and summative assessments is used to evaluate students' overall performance, including their skill levels, emotional attitudes, teamwork, and social adaptability.

4.2. Analysis of Successes and Shortcomings

The successes of the Beijing university's reform efforts include:

Increased Student Engagement: The introduction of diverse and innovative sports has significantly boosted student participation and interest.

Enhanced Comprehensive Abilities: Interdisciplinary teaching has not only improved students' physical skills but also enhanced their mental health awareness and sense of social responsibility.

Teacher Professional Development: Regular professional training has elevated the teaching standards and pedagogical skills of the faculty.

However, there are also some shortcomings:

Uneven Resource Allocation: The high cost of equipment for new sports has led to imbalanced resource distribution.

Limited Teacher Proficiency with New Technologies: Some teachers are still not fully proficient in using advanced technologies, such as virtual reality, which affects the quality of instruction.

Insufficient Home-School-Community Collaboration: There is a need for better communication mechanisms between the school and families, and more effective utilization of community resources for extracurricular activities.

4.3. Implementation Pathways and Strategies

To further advance the core competency-oriented reform in university PE, the following pathways and strategies are proposed:

Optimize Curriculum Structure: Continuously update and improve the PE curriculum to ensure it is diverse and relevant to students' needs and developmental goals.

Enhance Teacher Training: Increase the frequency and depth of professional development programs, particularly in the application of new technologies. Establish incentives for teachers to adopt innovative teaching methods.

Promote Resource Sharing: Efficiently allocate both on-campus and off-campus sports facilities to ensure all students have access to high-quality PE resources. Explore partnerships with technology companies to introduce advanced sports equipment and tools.

Strengthen Home-School-Community Collaboration: Develop robust communication channels between the school and families, and hold regular parent-teacher meetings to enhance understanding and support. Seek government and societal support to provide policy and financial backing for PE reforms.

Improve Evaluation and Feedback Mechanisms: Enhance the diversified evaluation system to focus on both formative and summative assessments. Provide personalized feedback to help students identify and address issues promptly, fostering continuous improvement.

4.4. Summary of Main Content and Significance

The proposed implementation pathways aim to advance core competency-oriented reform in university PE through optimizing the curriculum, enhancing teacher training, promoting resource sharing, strengthening home-school-community collaboration, and improving evaluation and feedback mechanisms. These measures not only contribute to the physical and mental well-being of students but also

develop their teamwork, social responsibility, and other essential life skills. Additionally, they provide opportunities for teacher professional growth and overall educational quality improvement. Ultimately, these reforms will help cultivate well-rounded, high-quality talents who are better prepared to meet the demands of society.

5. Implementation Guarantees for Core Competency-Oriented Reform in University Physical Education Teaching Models

To ensure the smooth implementation and achievement of the expected outcomes of core competency-oriented reform in university physical education, several key measures must be put in place. These measures cover policy support, financial investment, teacher training, technological support, and institutional development.

5.1. Policy Support

Policy support is a crucial safeguard for the reform. The government should issue relevant policy documents to clarify the direction and objectives of the reform, providing necessary policy guarantees. School management should also develop detailed implementation plans, clearly defining the responsibilities and tasks of each department to ensure that reform measures are effectively implemented.

Government Policies: The government should introduce policies that support the reform, outlining clear guidelines and objectives for university physical education. This includes providing legal and regulatory frameworks that facilitate the reform.

School Management Plans: Schools should develop comprehensive plans that detail the steps and strategies for implementing the reform. This includes setting specific goals, timelines, and accountability measures.

5.2. Financial Investment

Financial investment is the material foundation for the reform. Both the government and schools should establish special funds to purchase teaching equipment, improve sports facilities, and train teachers.

Government Funding: The government should allocate special funds to support the reform, including funding for advanced teaching equipment and the improvement of sports facilities.

School Funds: Schools should set up special funds to support the implementation of teaching reform projects, such as curriculum development, textbook writing, and the creation of teaching resources.

5.3. Teacher Training

Teacher training is essential for enhancing the quality of teaching. Regular professional development programs should be organized to update teachers' pedagogical concepts and skills, ensuring they possess advanced educational philosophies and scientific teaching methods.

Workshops and Seminars: Organize teaching workshops and invite renowned domestic and international experts to give specialized lectures, sharing the latest teaching concepts and methods.

Academic Conferences and Observations: Encourage teachers to participate in domestic and international academic conferences and teaching observation activities to broaden

their horizons and stimulate new ideas.

Research Mechanisms: Establish a research mechanism to encourage teachers to engage in physical education research, applying the latest research findings to actual teaching practices. Schools can also set up special funds to support teachers in conducting teaching reform projects, incentivizing innovation in teaching methods and tools.

5.4. Technological Support

Technological support is a vital means of enhancing teaching effectiveness. Modern information technology tools, such as virtual reality and online platforms, should be utilized to enrich teaching methods and improve learning outcomes.

Multimedia Resources: Develop multimedia teaching resources and build online learning platforms to provide a wealth of teaching materials and interactive tools, making it convenient for students to learn anytime, anywhere.

Virtual Reality (VR): Use VR technology to simulate real sports scenarios, helping students better master athletic techniques.

Collaboration with Enterprises: Partner with technology companies to introduce advanced teaching equipment and techniques, further enhancing teaching effectiveness.

5.5. Institutional Development

Institutional development ensures the standardization and regulation of the reform. A comprehensive and objective evaluation system should be established to assess not only students' skill levels but also their emotional attitudes, teamwork, and social adaptability.

Diverse Evaluation Indicators: Design a diversified evaluation system that covers multiple aspects, including skill levels, teamwork, innovation, and social responsibility.

Process-Oriented Evaluation: Conduct regular formative assessments to record students' performance and progress during the learning process, providing timely feedback and guidance.

Personalized Feedback: Offer personalized feedback and guidance to help students identify and address issues promptly. For example, conduct regular individual interviews and maintain growth records to track students' academic progress and psychological state.

Teaching Management Systems: Establish robust teaching management systems with clear procedures and standards to ensure the standardization and regularization of the reform.

Summary

The implementation guarantees for core competency-oriented reform in university physical education include policy support, financial investment, teacher training, technological support, and institutional development. These measures not only provide strong support for the smooth implementation of the reform but also lay a solid foundation for improving teaching quality and promoting students' comprehensive development. By ensuring the effective implementation of these measures, the reform can provide clear direction and specific strategies for the innovation and development of university physical education. Ultimately, these measures will contribute to achieving the goals of higher education and cultivating more well-rounded, high-quality talents for society.[7]

6. Conclusion

This study delves into the reform of university physical

education teaching models oriented towards core competencies, constructing a theoretical framework and proposing specific implementation paths. The research finds that traditional university physical education models overly emphasize skill training while neglecting the cultivation of students' core competencies, failing to meet the needs of students and societal expectations. The core competency-oriented reform aims to enhance students' physical and mental health, social adaptability, and lifelong learning capabilities through diversified course offerings, experiential learning, project-based learning, and the application of modern information technology.

The study also highlights that establishing a comprehensive and objective evaluation system and a home-school-community collaboration mechanism is crucial for ensuring the effectiveness of the reform. These measures not only improve students' overall qualities but also promote innovation and development in higher education, enhancing the competitiveness and social reputation of universities.

6.1. Theoretical Significance

From a theoretical perspective, the core competency-oriented reform framework constructed in this study enriches the educational theory system and provides a new theoretical perspective and methodological support for university physical education reform. This framework clarifies the direction and path of core competency-oriented reform, offering theoretical grounds for educational innovation and promoting the updating of educational philosophies and teaching methods.

6.2. Practical Significance

From a practical standpoint, the core competency-oriented university physical education model not only focuses on students' physical health but also emphasizes the cultivation of their mental health, social adaptability, and lifelong learning abilities, contributing to their comprehensive development. Through diversified course offerings, experiential learning, and project-based learning, the model improves teaching quality and student learning outcomes, increasing student engagement and intrinsic motivation. Additionally, the home-school-community collaboration mechanism forms a multi-party synergy, collectively promoting the development of students' core competencies and cultivating more well-rounded, high-quality talents for society. This reform also enhances the educational quality and competitiveness of universities, raising their social reputation and laying the foundation for sustainable development.

6.3. Future Research Directions and Recommendations

While this study has achieved some success in the core competency-oriented reform of university physical education, there are still many areas worthy of further exploration. Future research could:

Empirical Studies: Conduct empirical studies to collect more data and case studies, validating the effectiveness and feasibility of the theoretical framework and providing a more scientific basis for the reform.

Longitudinal Research: Perform long-term tracking studies to assess the long-term impact of the reform on students' development and further optimize reform measures.

Interdisciplinary Research: Encourage interdisciplinary research, combining physical education with fields such as

psychology, sociology, and management, to explore more innovative teaching methods and tools.

International Comparative Studies: Conduct international comparative studies to draw on successful experiences from core competency-oriented physical education reforms in foreign universities, providing more references and insights for domestic institutions.

In summary, the core competency-oriented reform of university physical education not only enriches the educational theory system and drives educational innovation but also enhances teaching quality and promotes students' comprehensive development. It forms an educational synergy and boosts the competitiveness and social reputation of universities. Future research should deepen theoretical studies, conduct empirical and longitudinal research, and explore more innovative teaching methods and tools to provide more scientific and comprehensive support for the reform of university physical education.

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References

- [1] Elavsky, S., Knapova, L. , & Cernicky, K. T. . (2024). Multiple perspectives on the adoption of smart technologies for improving care of older people: mixed methods study. *Journal of medical Internet research*, 26(1), 1-14.
- [2] Deng, L., Wu, Y. , Chen, L. , & Peng, Z. . (2024). 'pursuing competencies' or 'pursuing scores'? high school teachers' perceptions and practices of competency-based education reform in china. *Teaching and Teacher Education*, 141.
- [3] Tamozhska, I. , Rud, O. , Medynskyi, S. , Polukhtovych, T. , Kuzemko, N. , & Rudenko-Kraievska, N.. (2024). The educational paradigm as a conceptual model of developing competencies during learning. *Romanian Journal for Multidimensional Education / Revista Românească pentru Educație Multidimensională*, 16(2).
- [4] González, Javier, Melgoza, E. , Cabeza, L. , & Okoye, K. . (2024). Assessment of students' learning outcome and competency through a blend of knowledge and practical ability. *International Journal of Instruction*, 17(2).
- [5] Zetkulić, M., Moriarty, J. P. , Amin, A. , Angus, S. , Dalal, B. , & Fazio, S. , et al. (2023). Exploring competency-based medical education through the lens of the ume-gme transition: a qualitative study. *Academic Medicine*, 99(1), 83-90.
- [6] González, Javier, Melgoza, E. , Cabeza, L. , & Okoye, K. . (2024). Assessment of students' learning outcome and competency through a blend of knowledge and practical ability. *International Journal of Instruction*, 17(2).
- [7] Nurdin, A., Samad, S. A. A. , Samad, M. , & Fakrurrazi, F. . (2023). Government policy regarding education in indonesia: analysis of competence-based curriculum, educational unit level curriculum, and curriculum 2013. *Journal of Governance and Social Policy*.