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A Study on the Reconstruction and Enhancement of the Teaching Competency Framework for Physical Education Majors Under the CIPP Model

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Abstract

Objective: Against the backdrop of basic education curriculum reform and the strategy to build China into a sports powerhouse in the new era, this study addresses issues such as unclear objectives, fragmented training processes, and one-dimensional evaluation methods in the development of teaching competencies among physical education majors in higher education institutions. By introducing the CIPP evaluation model, the study aims to systematically reconstruct the teaching competency framework for physical education majors and explore pathways for its enhancement.

Methods: Using the CIPP model as a theoretical framework, this study comprehensively employed literature review, questionnaire surveys, mathematical statistics, expert consultation, interviews, and case studies to investigate and analyze the current status of teaching competencies among physical education majors in Guangdong's universities and their influencing factors. Taking the physical education program at Zhaoqing University as a typical case, the study constructed and implemented a CIPP-based teaching competency evaluation system and practical implementation plan.

Results: The study found that the overall level of teaching competence among physical education majors is moderate, with significant disparities in competence structure. The formation and development of these competencies are jointly influenced by multiple factors, including the positioning of educational objectives, the allocation of curriculum and practical resources, and the teaching implementation and evaluation processes; The teaching competency evaluation system constructed based on the CIPP model can comprehensively and dynamically reflect the formation process and developmental outcomes of students' teaching competencies; through clarifying educational objectives, optimizing curriculum and practical conditions, and strengthening formative assessment and feedback mechanisms, Zhaoqing University has preliminarily established a new model for cultivating teaching competencies among physical education majors that is both practical and worthy of broader adoption.

Conclusion: The CIPP model aligns closely with the intrinsic logic of teaching competency development among physical education majors. Applying it to the

restructuring and evaluation of teaching competency systems facilitates a shift from a results-oriented approach to one focused on process and development. This provides effective theoretical tools and practical pathways for reforming the cultivation and evaluation of teaching competencies among physical education majors in higher education institutions, holding significant implications for enhancing the quality of physical education teacher training.

Keywords

CIPP Model; Physical Education Majors; Teaching Competencies; Evaluation System; Talent Development

1. Introduction

Against the backdrop of basic education reform in the new era and the strategy to build China into a sports powerhouse, the professional competence and teaching abilities of physical education teachers have become key factors influencing the quality of physical education in schools [1]. As the primary platform for training physical education teachers, the quality of talent cultivation in physical education programs directly impacts the overall proficiency of future teachers, and the development of teaching abilities among students in these programs constitutes a core component of the talent development system [2]. Currently, although physical education programs in higher education institutions are continuously advancing reforms in curriculum design, practical instruction, and competency assessment, issues such as unclear competency objectives, fragmented development pathways, and one-dimensional evaluation criteria remain prevalent in the process of cultivating teaching competencies. This makes it difficult to systematically reflect the overall structure and developmental process of physical education teaching competencies [3]. Particularly in practical teaching, teaching competence is often reduced to mere teaching skills or classroom performance, overlooking key factors such as contextual conditions, resource allocation, and process management that underpin the development of teaching competence. This hinders the overall improvement of teaching competence among physical education majors.

Consequently, it is necessary to introduce a more systematic, process-oriented evaluation and analysis framework to comprehensively review and reconstruct the teaching competency system for physical education majors. As a comprehensive evaluation model emphasizing Context, Input, Process, and Product, the CIPP model can reveal the operational logic and quality generation mechanisms of educational activities from a systemic perspective, thereby providing theoretical support for the development and evaluation of teaching competencies [4]. Applying the CIPP model to research on the teaching competencies of physical education majors helps overcome the limitations of outcome-oriented evaluation by focusing on the conditions for competency formation, the implementation process, and developmental outcomes, thereby reconstructing the teaching competency system

for these students. Based on this, this paper uses the CIPP model as a theoretical framework. Focusing on the intrinsic logic of teaching competencies among physical education majors, it systematically constructs a teaching competency system that encompasses educational positioning, resource support, instructional implementation, and evaluation management. It proposes multidimensional pathways for optimizing teaching competencies and, using the physical education program at Zhaoqing University as a case study, explores the effectiveness, challenges, and directions for improvement of this system in actual implementation. The aim is to provide theoretical references and practical grounds for the reform of teaching competency development and evaluation in physical education programs at higher education institutions.

2. Analysis of the Current Situation

The CIPP evaluation model, proposed by American educational evaluation scholar Stufflebeam in the 1970s, is an educational evaluation framework oriented toward decision-making and improvement[2,3]. At its core, it establishes a systematic, dynamic, and closed-loop evaluation system through the four dimensions of "Context—Inputs—Process—Outcomes," emphasizing that the fundamental purpose of evaluation is to promote project optimization and educational improvement, rather than merely verifying results. This model is characterized by its distinct developmental, reflective, and decision-supporting features, emphasizing the integration of formative and summative evaluation within specific educational contexts to continuously adjust teaching strategies and achieve educational goals. In recent years, as research on teaching quality evaluation in China has deepened, the CIPP model has been widely applied in higher education, medical education, curriculum evaluation, and teacher professional development, demonstrating strong adaptability and practical value[5]. Given that physical education is a vital branch of pedagogy, introducing the CIPP model into research on evaluating the teaching competencies of physical education majors is not only theoretically feasible but also practically reasonable, as it facilitates a systematic examination of the entire process of cultivating teaching competencies.

Teaching competence serves as a crucial indicator for measuring the quality of talent cultivation in physical education programs and is a key lever for enhancing the quality of physical education instruction. In essence, the teaching competence of physical education students is a comprehensive professional capability formed gradually through teaching practice, built upon their mastery of educational theory and specialized knowledge and skills in physical education; it constitutes a foundational quality for their future careers in physical education. However, existing research indicates that physical education students in China still struggle to fully meet the practical demands of basic education reform and physical education curriculum development in terms of the structure of their teaching competencies,

adaptability to practical settings, and classroom teaching effectiveness. Furthermore, the evaluation system for teaching competencies suffers from issues such as inconsistent standards, fragmented content, and insufficient attention to the evaluation process. Although some scholars have attempted to apply the CIPP model to physical education teaching or teacher evaluation research, most studies have remained at the qualitative analysis level, and systematic, empirical research on the teaching competencies of physical education students remains scarce[6]. Against the backdrop of the new round of curriculum reform and the ongoing advancement of physical education and health curriculum standards and teacher professional standards, there is an urgent need to establish a scientific, systematic, and practical teaching competency evaluation system[7]. Based on this, applying the CIPP model to the evaluation of physical education students' teaching competencies will help reconstruct the evaluation system across dimensions such as contextual conditions, educational inputs, teaching processes, and learning outcomes, thereby providing a theoretical basis and practical reference for enhancing the quality of talent cultivation in physical education and optimizing pathways for developing teaching competencies.

3. Research Subjects and Methods

3.1. Research Subjects

This study focuses on the teaching competencies of physical education majors, examining their overall structure and actual performance in terms of educational objectives, resource support, teaching implementation, and evaluation outcomes. The research subjects primarily consist of two categories: first, current students majoring in physical education at general higher education institutions in Guangdong Province. Students from physical education programs at multiple universities in Guangdong were selected as survey participants, covering various grade levels, to obtain an overall picture of the teaching competencies of physical education students and their influencing factors, thereby providing empirical evidence for constructing a teaching competency evaluation system based on the CIPP model; second, students majoring in physical education at Zhaoqing University. Taking the Physical Education program at Zhaoqing University as a key case study, this research conducts an in-depth analysis of the current state of teaching competency development, as well as the construction and implementation of the evaluation system[7]. It systematically examines the appropriateness, feasibility, and implementation effectiveness of the CIPP model in the restructuring and practical application of the teaching competency system for Physical Education students.

3.2. Research Methods

In accordance with the basic paradigms of educational evaluation and physical education research, this study employs a combined approach of qualitative and quantitative research methods to systematically advance the evaluation and enhancement of teaching competencies among physical education majors. Using the literature review method, the study systematically reviews domestic and international research findings on the CIPP evaluation model, theories of teaching competencies, and talent development in physical education programs, thereby laying a theoretical foundation for the construction of the research framework and the design of the indicator system; Building on this foundation, a survey questionnaire was designed based on the CIPP model. The questionnaire survey method was employed to collect data on the current status of teaching competencies among physical education majors in universities across Guangdong Province[8]. Mathematical and statistical methods were then used to perform descriptive statistics, factor analysis, and correlation analysis on the data, providing quantitative evidence for the selection of evaluation indicators and the optimization of the framework. Concurrently, the expert consultation method was utilized to conduct multiple rounds of validation and revision of the evaluation model and indicator system, thereby enhancing their scientific rigor and practical applicability; Combined with semi-structured interviews, we gained an in-depth understanding of the practical challenges and improvement needs in the process of cultivating teaching competencies; using the Physical Education program at Zhaoqing University as a case study, we conducted a case study to systematically analyze the construction and implementation effectiveness of the evaluation system. On this basis, through logical analysis and comprehensive induction, we integrated the research results across four dimensions—context, inputs, processes, and outcomes—and ultimately proposed pathways and practical recommendations for enhancing the teaching competencies of Physical Education students based on the CIPP model.

4. Results and Analysis

By clarifying the internal logic of teaching competencies among physical education majors and mapping out the developmental trajectory of physical education instruction, we selected the CIPP model as the theoretical framework to reconstruct the teaching competency system for physical education majors across four dimensions: context, inputs, processes, and outcomes. This primarily encompasses four aspects: the developmental orientation, sustaining conditions, instructional implementation, and evaluation management of the physical education teaching competency system. We propose to construct a teaching competency system for physical education majors characterized by "one core, two wings, and one booster," and outline a multidimensional pathway for enhancing physical education teaching competencies, thereby elevating the teaching capabilities of physical education majors and empowering the high-quality development of physical education

programs in the new era.

4.1. Theoretical Rationale for Reconstructing the Teaching Competency System for Physical Education Majors Based on CIPP

From the perspective of the intrinsic logic underlying the development of teaching competence, the teaching competence of physical education majors is not merely the sum of individual skills, but rather a dynamic developmental process shaped by multiple factors — including curriculum structure, practical conditions, and individual reflection—under the guidance of clearly defined educational objectives. Existing evaluation systems for teaching competence generally prioritize outcomes over processes and classroom performance over developmental conditions, making it difficult to fully reflect students' actual level of teaching competence and their developmental potential. The CIPP model is grounded in systems theory and decision-oriented evaluation theory. Its closed-loop structure of "Context—Input — Process — Product" aligns closely with the mechanism by which physical education students develop their teaching competencies[9]. This model not only helps clarify competency development goals and environmental requirements but also facilitates coordinated resource allocation, strengthens process monitoring, and promotes outcome feedback and continuous improvement. Therefore, incorporating the CIPP model into the restructuring of the teaching competency system for physical education majors is highly rational and appropriate both in terms of theoretical framework and methodology.

4.2. Analysis of the Current Status and Influencing Factors of Teaching Competencies Among Physical Education Majors

Survey results indicate that the overall teaching competencies of physical education majors in Guangdong Province are at a moderate level, though significant disparities exist within the competency structure. Students demonstrate relatively strong performance in mastering specialized techniques and basic instructional organization, but exhibit notable deficiencies in grasping instructional objectives, integrating content, managing classroom situations, and engaging in teaching reflection. Teaching practices remain primarily focused on task completion and technical instruction, with limited opportunities for students to exercise agency and for classroom-generated learning to unfold. Further analysis reveals that the development of teaching competencies is influenced by multiple factors, including curriculum structure and practical conditions, formative assessment and instructional guidance methods, as well as students' individual self-efficacy and professional identity[10]. This indicates that the deficiencies in teaching competencies among physical education majors are not caused by a single factor but result from the interaction of multidimensional factors such as context, input, and process. There is an urgent need for comprehensive improvement within a

systematic evaluation framework.

4.3. Construction of a CIPP-Based Evaluation Model and Indicator System for Teaching Competencies of Physical Education Majors

Based on the formation mechanisms and practical challenges of teaching competencies among physical education majors, this paper employs the CIPP model as a theoretical framework to construct a comprehensive evaluation model covering four dimensions: context, input, process, and products. Context evaluation focuses on the appropriateness of educational objectives and alignment with pedagogical philosophies, clarifying the value orientation of competency development; The input evaluation examines the curriculum system, faculty resources, and practical resources to ensure the conditions necessary for competency development; the process evaluation centers on instructional design, implementation, and reflection, highlighting the dynamic development of teaching competencies in real-world contexts; and the outcomes evaluation balances teaching performance levels with developmental potential, emphasizing how feedback from results can drive improvements in earlier stages of training[11]. This model establishes an evaluation system characterized by clear structure, logical integrity, and a distinct developmental orientation, providing a systematic tool for universities to conduct diagnostic assessments and improvements of teaching competencies.

4.4. Design of an Assessment Plan for Teaching Competencies of Physical Education Majors Based on the CIPP Model

The assessment plan for teaching competencies based on the CIPP model adheres to the principles of "embedding throughout the entire process, implementation at key junctures, and dynamic feedback for improvement," thereby organically integrating assessment into the talent development process for physical education majors and the implementation of their graduation projects. The evaluation activities are carried out in phases across four dimensions: context, inputs, processes, and outcomes. Through methods such as questionnaires, interviews, classroom observations, analysis of teaching materials, and internship evaluations, diagnostic and formative assessments are conducted to evaluate the development of students' teaching competencies. The evaluation results are not only used to determine the degree of achievement in teaching competencies but also, through a feedback mechanism, inform the optimization of curriculum design, practical teaching, and training programs, thereby driving the transformation of teaching competency evaluation from a mere assessment of outcomes to a process of continuous improvement.

4.5. Implementation Pathways for Enhancing Teaching Competencies of Physical Education Majors Based on CIPP

Within the CIPP model framework, the pathway for enhancing teaching

competencies among physical education majors should span the entire talent development process and be guided by evaluation results to achieve systematic improvement. At the context and input levels, the foundation for teaching competency development is established by refining educational objectives, optimizing the curriculum system, and improving practical training conditions[12]; At the process and product levels, using real teaching scenarios as a vehicle, a "practice-reflection-improvement" mechanism for competency development is established to strengthen the cultivation of instructional design, classroom implementation, and reflective abilities, while using product evaluations to guide students toward continuous self-improvement. Through the virtuous cycle of evaluation, training, and improvement, teaching competencies are propelled from the accumulation of experience toward systematic development.

4.6. Reform and Innovation of Teaching Competencies for Physical Education Majors Based on the CIPP Model: A Case Study of Zhaoqing University

Taking the Physical Education program at Zhaoqing University as an example, the institution has undertaken systematic reforms in talent development objectives, curriculum systems, practical teaching, and evaluation methods under the guidance of the CIPP model: in the context dimension, teaching competence is clearly defined as the core development objective; in the input dimension, the curriculum structure is optimized and a "dual-mentor system" is implemented; in the process dimension, authentic classroom practice and reflective support are strengthened; and in the outcomes dimension, a comprehensive evaluation mechanism involving multiple stakeholders and diverse evidence is established. By embedding evaluation throughout the entire training process, a virtuous cycle of "diagnosis—improvement—reevaluation" has gradually taken shape, leading to the preliminary establishment of a new model for cultivating teaching competencies among physical education students that features clear objectives, a coherent pathway, and significant potential for broader application.

5. Conclusions and Recommendations

5.1. Research Conclusions

（1）The teaching competence of physical education majors demonstrates pronounced systemic and process-oriented characteristics. Its development is not a simple accumulation of isolated teaching skills, but rather the result of the synergistic interaction among goal-oriented training, resource support, instructional practice, and reflective improvement. At present, the overall level of teaching competence among physical education majors in higher education institutions remains moderate; however, notable deficiencies persist in key areas such as instructional goal alignment, classroom context management, and reflective

teaching practice. These shortcomings highlight the need for comprehensive improvement at the systemic level.

（2）The CIPP model is highly compatible with the intrinsic developmental logic of teaching competence among physical education majors. By examining teaching competence across the four dimensions of context, input, process, and product, this model effectively transcends traditional outcome-centered evaluation approaches. It enables a comprehensive assessment of the conditions, implementation processes, and developmental outcomes of teaching competence, thereby providing a sound scientific basis for diagnosis and continuous improvement.

（3）The teaching competence evaluation model and indicator system constructed based on the CIPP framework feature a clear structure and comprehensive components, integrating both goal-oriented and development-oriented perspectives. This model not only captures the current level of teaching competence among physical education majors but also reveals their developmental potential, demonstrating strong practical applicability and value for broader implementation.

（4）Practice-based evidence from the case of Zhaoqing University indicates that embedding the CIPP model throughout the entire physical education teacher education process yields tangible benefits. Specifically, it enhances the clarity of training objectives, optimizes curricular and practical resource allocation, strengthens process-oriented guidance and feedback, and improves outcome evaluation methods. Collectively, these efforts help establish a virtuous cycle of "evaluation – improvement – re-evaluation," facilitating a transition in the development of teaching competence among physical education majors from experience-based growth to systematic advancement.

5.2. Implications and Recommendations

（1）At the level of training objectives, higher education institutions should further reinforce the central role of teaching competence in the preparation of physical education majors. In alignment with reforms in physical education curricula at the basic education level and national professional standards for physical education teachers, training objectives should be refined and operationalized by translating teaching competence development into clear, measurable, and assessable outcomes. This approach can guide students toward a well-defined professional identity as physical education teachers and foster stable, value-driven orientations toward teaching.

（2）At the level of curriculum design and resource allocation, curriculum structures should be optimized with teaching competence development as the guiding principle. A balanced and coordinated integration of pedagogy-related courses and sport-specific courses should be achieved to enhance curricular coherence. In addition, the implementation of dual-mentor systems, the strengthening of on- and off-campus practicum bases, and the inclusion of exemplary physical education

teachers in instructional demonstrations can provide students with diverse, high-quality teaching practice opportunities, thereby reinforcing the input conditions necessary for teaching competence development.

（3）At the level of instructional implementation and evaluation, greater emphasis should be placed on process-oriented evaluation and developmental feedback. Teaching design, classroom implementation, and reflective practice should be positioned as core components of teaching competence cultivation. By employing methods such as classroom observation, peer assessment, and reflective teaching journals, institutions can support students in continuously refining instructional behaviors and enhancing teaching competence within authentic teaching contexts, rather than relying solely on outcome-based assessments.

（4）At the level of institutional systems and mechanisms, universities should promote the routine and sustained application of the CIPP model in the evaluation of teaching competence within physical education programs. By establishing evaluation and feedback mechanisms that involve multiple stakeholders and draw on multi-dimensional sources of evidence, evaluation results can more effectively inform revisions to training programs, curriculum reform, and the optimization of practical teaching, thereby fostering a quality assurance system centered on continuous improvement.

（5）For future research, scholars are encouraged to expand sample sizes and adopt longitudinal designs and mixed-methods approaches to further examine the dynamic mechanisms and long-term outcomes of teaching competence development among physical education majors. Such efforts will contribute to the ongoing enrichment and refinement of CIPP-based theoretical and practical frameworks in physical education teacher education.

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