



Development of Key Competencies of Physical Education Teachers in Universities for Jiangxi Province, the People's Republic of China

Tang Jing¹, Nopporn Tasnaina² and Aek Girdtempumi³

Faculty of Sports Science and Technology, Bangkokthonburi University, Thailand

¹E-mail: 248783980@qq.com, ORCID ID: <https://orcid.org/0000-0002-5244-8881>

²E-mail: nop5503@hotmail.com, ORCID ID: <https://orcid.org/0009-0001-6086-0657>

³E-mail: elovemylove@gmail.com, ORCID ID: <https://orcid.org/0009-0006-4235-233X>

Received 28/09/2025

Revised 12/10/2025

Accepted 15/11/2025

Abstract

Background and Aims: Developing key competencies among university physical education (PE) teachers is essential for enhancing teaching quality and aligning with educational modernization goals in China. In Jiangxi Province, the lack of a localized competency framework has limited systematic evaluation and professional development. This study aimed to construct and validate a three-tier competency model integrating McClelland's competency theory with Marxist human development and Confucian educational principles to ensure contextual and cultural relevance.

Methodology: A mixed-methods design was employed. Data collection involved a literature review, semi-structured interviews with 7 experts, an IOC content validity assessment by 5 specialists (overall IOC = 0.85), and a questionnaire survey of 201 university PE teachers. Two Delphi rounds with 19 experts were conducted to evaluate appropriateness, clarity, and feasibility, using consensus criteria of Median ≥ 4.00 and IQR ≤ 1.00 . A nine-member focus group refined the model's applicability, followed by connoisseurship evaluation by 7 senior experts to finalize the framework.

Results: The finalized model comprises three domains: Generic, Core, and Functional Competencies, with 12 sub-dimensions and 63 measurable indicators. All indicators met high consensus thresholds (Median ≥ 4.50 , IQR ≤ 1.00). Quantitative and qualitative analyses confirmed the model's clarity, practicality, and cultural fit. The framework provides a validated structure for evaluating teacher performance, guiding professional development, and aligning university PE teaching with national competency-based reforms.

Conclusions: The developed competency model offers a comprehensive, evidence-based framework for improving PE teacher development and educational quality in Jiangxi Province. It bridges international competency theory and local educational practice, serving as a reference for similar higher education contexts in China and beyond.

Keywords: Key Competencies; Physical Education Teachers; Jiangxi; Higher Education; Delphi Method; Teacher Evaluation



Introduction

In today's evolving educational landscape, physical education (PE) teachers play a vital role in promoting students' physical, intellectual, and social development. Yet in Jiangxi Province, China, the lack of a localized competency framework has limited systematic evaluation and professional growth among university PE teachers. Despite national reforms, existing models remain fragmented within the regional and cultural context of higher education.

To address this gap, this study develops a three-tier key competency model for university PE teachers, integrating McClelland's competency theory, Marxist human development theory, and Confucian educational philosophy. McClelland provides the behavioral foundation for performance-oriented traits and skills, Marxism adds a collective and developmental perspective, and Confucianism emphasizes moral integrity and lifelong learning. These theories are operationalized into measurable indicators through expert interviews, Delphi consensus, and focus-group validation to ensure both rigor and cultural relevance.

Using a mixed-methods approach combining literature review, interviews, questionnaire, Delphi technique, focus-group refinement, and connoisseurship appraisal, the study identifies the domains and dimensions of PE teachers' key competencies and confirms the model's validity and applicability. The framework serves as an evidence-based tool for evaluating teacher competencies and supporting the modernization of teacher development in Jiangxi Province. The findings bridge Western competency theory with Chinese philosophical traditions and offer practical guidance for teacher assessment, recruitment, and professional training.

Objectives

1. To investigate the outcomes derived from researching the development of a key competency framework for university physical education teachers in Jiangxi Province.
2. To compare the competency levels and structural characteristics identified before and after the implementation of the developed model to determine improvement or change.
3. To design, develop, and validate research instruments, including questionnaires, interview protocols, and evaluation rubrics used in this study.

Literature Review

The global movement toward competency-based education has reshaped teacher development frameworks worldwide. Internationally, organizations such as the OECD (Education 2030 Framework), UNESCO (Teacher Competency Standards), AITSL (Australia), and InTASC (United States) emphasize learner-centered pedagogy and ethical professionalism as essential qualities of effective teachers. These frameworks share a focus on measurable performance indicators but



differ in emphasis: OECD highlights adaptability and innovation, while AITSL and InTASC stress reflective practice and student engagement. Despite these advances, most models remain generic, with limited attention to physical education (PE)-specific competencies such as motor-skill instruction, sports science knowledge, and health promotion (Casolo et al., 2019; Council of Chief State School Officers, 2011).

In China, teacher competency research has expanded since the Ministry of Education's 2011 Professional Standards for Teachers. However, most studies remain descriptive, emphasizing pedagogical knowledge while neglecting dimensions such as emotional intelligence, moral responsibility, and interdisciplinary integration (Liu & Li, 2019). Comparative analyses reveal that international frameworks emphasize learning outcomes and adaptability, whereas Chinese models focus on moral cultivation and social responsibility, reflecting a value-oriented rather than performance-oriented tradition. This highlights the need for an integrative framework that balances Western behavioral theory with Chinese philosophical foundations.

Building on McClelland's (1973) notion that competency includes traits, motives, and behaviors beyond technical skill, this study integrates Marxist Human Development Theory, emphasizing the unity of personal and collective growth, and Confucian Educational Thought, highlighting moral integrity, lifelong learning, and social harmony. These principles were translated into measurable indicators, for instance, moral cultivation into ethical teaching conduct, lifelong learning into self-reflection, and social responsibility into community engagement. Integrating these dimensions ensures cultural alignment within the PE context.

Research further shows that PE teachers require competencies extending beyond traditional instruction. International evidence links teacher competencies with student outcomes such as physical literacy, motivation, and well-being (OECD, 2018; UNESCO, 2019). However, empirical studies in China remain limited in scope and rigor. Synthesizing global and national insights, this study identifies twelve sub-dimensions spanning generic, core, and functional domains, aligned with international standards and China's educational values. A conceptual alignment matrix (Table 1) maps these dimensions against AITSL, InTASC, and OECD frameworks, demonstrating the model's novelty and contextual relevance.

In summary, existing research provides valuable foundations but lacks an integrated, empirically tested, and culturally grounded framework for evaluating university PE teachers. This study fills that gap by developing and validating a competency model that aligns with global paradigms while reflecting China's distinct philosophical and educational ideals.



Conceptual Framework

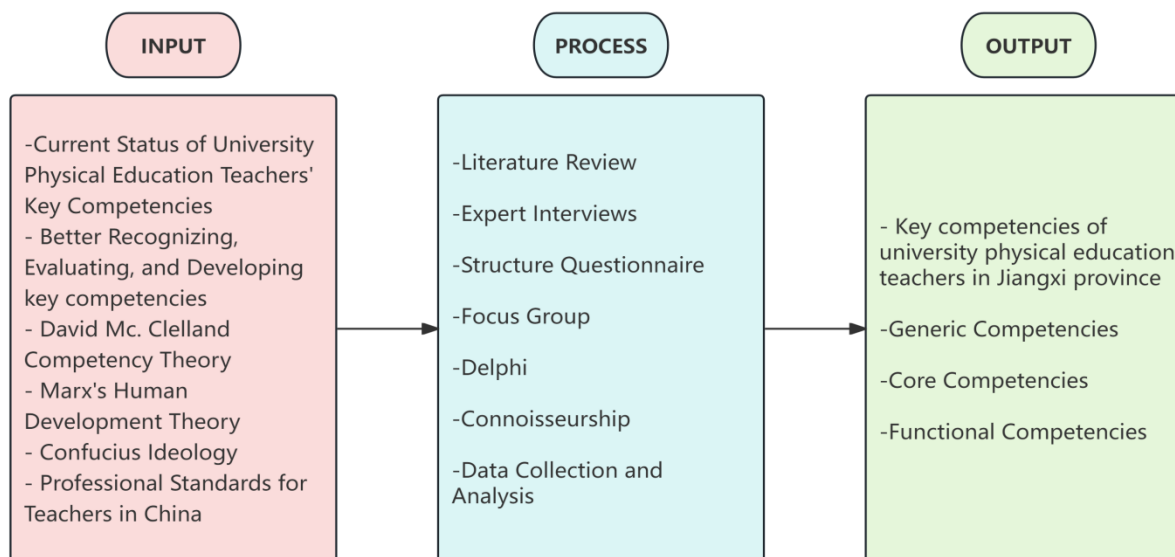


Figure 1 Conceptual Framework

Methodology

This section introduces the study design, population, and sample size determination, data collection methods, research instruments, and data analysis techniques used in the study:

1. Research Instruments

In-depth Interview Form: An open-ended guide was used to consult seven domain experts on the essential domains, dimensions, and indicators for the proposed competency framework. Experts included senior academics, PE curriculum developers, and teacher trainers with more than 10 years of experience. The content was validated by five specialists, and items meeting Item-Objective Congruence ($\text{IOC} \geq 0.60$) were retained for subsequent development.

Questionnaire: The structured questionnaire was developed based on McClelland's Competency Theory, Marxist human development ideals, Confucian ethics, and China's Professional Standards for Teachers (MOE, 2011; 2021).

Part 1 collected demographic data (gender, position, academic qualification, and teaching experience).

Part 2 measured competencies across three domains, twelve dimensions, and sixty-three indicators using a 5-point Likert scale (5 = Very High to 1 = Very Low).

The questionnaire was originally written in English and translated into Chinese using Brislin's (1980) back-translation method to ensure linguistic and conceptual accuracy. Content validity was first examined by five experts ($\text{IOC} \geq 0.60$), followed by calculation of Aiken's V coefficients ($\geq$



0.80) to confirm inter-rater agreement. Internal reliability was later tested using Cronbach's α (0.83–0.92) for each sub-dimension.

Focus Group Outline: Derived from questionnaire and interview results, the outline was used with nine experts representing universities, research institutions, and sports departments to refine the feasibility, clarity, and contextual applicability of the model.

Delphi Method: Two Delphi rounds were conducted with nineteen experts (12 male, 7 female) from universities, teacher education bureaus, and sports institutes. Each expert had at least 10 years of experience in physical education teaching or research. They rated each domain and indicator for appropriateness, feasibility, and clarity. Convergence was defined as median ≥ 3.50 and IQR ≤ 1.50 . Decision rules: retain (median ≥ 4.00 , IQR ≤ 1.00); revise ($3.50 \leq \text{median} < 4.00$ or $1.01 \leq \text{IQR} \leq 1.50$); drop (median < 3.50 or IQR > 1.50).

Connoisseurship Evaluation: Finally, seven senior professors and policymakers specializing in PE teacher education assessed the finalized model's feasibility, practicality, and satisfaction. Their qualitative comments were incorporated to refine phrasing and structural clarity before final acceptance.

2. Data Collection

Data were collected in three main phases between January and September 2024 across universities in Jiangxi Province.

Phase 1: Semi-structured interviews were conducted with seven experts. All interviews were recorded, transcribed verbatim, and coded thematically.

Phase 2: The validated questionnaire was distributed electronically via Questionnaire Star. A total of 230 questionnaires were sent to PE teachers across 12 universities, yielding 201 valid responses (response rate = 87.4%). Respondents included 58% male and 42% female, with diverse academic ranks and 3–25 years of teaching experience. Quality control measures included time-check filters (responses under 5 minutes or over 40 minutes were excluded), completeness checks, and anonymous participation to ensure data integrity.

Phase 3: The draft model was discussed in a focus group of nine experts, followed by two Delphi rounds and the final connoisseurship evaluation.

All participants provided informed consent before data collection. The study was approved by the Research Ethics Committee of Bangkokthonburi University (Approval No. 2568/67 (4)) in compliance with ethical research standards regarding voluntary participation, confidentiality, and data protection.

3. Data Analysis

Qualitative data from interviews and focus groups were analyzed through content and thematic analysis to refine domain definitions and competency indicators. Quantitative data from questionnaires were analyzed using SPSS 28.0, employing the following procedures:

Descriptive statistics: mean, standard deviation, and frequency analysis.

Reliability testing: Cronbach's α and Composite Reliability (CR $\geq$ 0.80).

Construct validation: Content validity (IOC $\geq$ 0.60) was confirmed before distribution.

Delphi analysis: medians and interquartile ranges (IQR) were computed to evaluate convergence and consensus trends across rounds.

Connoisseurship evaluation: experts' qualitative comments were coded and summarized thematically to finalize model refinement.

All evaluations used a 5-point Likert scale, where a mean $\geq$ 4.50 indicated high consensus (5 = Very High, 4 = High, 3 = Moderate, 2 = Low, 1 = Very Low). This systematic mixed-methods process ensured the rigor, validity, and contextual relevance of the developed key competency model for university PE teachers in Jiangxi Province.

Results

This study followed a systematic, multi-phase process to develop, validate, and refine a key competency model for university physical education (PE) teachers in Jiangxi Province. The research began with a comprehensive literature review and theoretical integration of McClelland's Competency Theory, Marxist Human Development Theory, and Confucian Educational Philosophy to construct the conceptual foundation and preliminary framework. Expert interviews were then conducted to identify essential competency indicators relevant to both global standards and local educational contexts. A structured questionnaire, developed and content-validated using the Item-Objective Congruence (IOC) method, was distributed to PE teachers, yielding 201 valid responses. The questionnaire adopted a five-point Likert scale (1 = Very Low to 5 = Very High) to measure teachers' perceived levels of each competency indicator. The collected data were analyzed for reliability and validity, ensuring that each item accurately reflected the intended construct. To maintain rigor and expert consensus, two Delphi rounds with 19 specialists, followed by a focus group discussion and connoisseurship evaluation, were conducted to further refine and confirm the framework's feasibility and practical applicability.

The final three-tier model comprises Generic, Core, and Functional competencies (Level 1), 12 sub-dimensions (3 Generic, 5 Core, 4 Functional), and 63 observable indicators. Integrating performance-oriented principles from McClelland with Confucian moral and lifelong learning ideals, the model provides a culturally grounded, empirically validated framework for guiding



teacher evaluation, professional development, curriculum improvement, and educational policy alignment within Jiangxi's higher education system.

Table 1 The Draft Key Competencies

Level 1	Level 2	Level 3
Generic	Social Responsibility and Educational Impact	Engagement and contribution of the community and industry
		Policy Literacy and School-based Implementation
		External Professional Influence and Public Communication
		Demonstrative Leadership Both Inside and Outside the School
	Lifelong Learning and Professional Competence Renewal	Self-reflection and teaching improvement
		Professional training and academic exchanges
		Personal Career Planning and Stage-wise Goal Management
		Ability to Adjust to Stress and Prevent Professional Burnout
		Ability to monitor global trends in sports education and integrate relevant advancements into local teaching practice
	Cross-role communication and collaboration skills	Communication and Collaboration with Colleagues and Departments
		Interaction and Guidance with Students
		Cross-departmental or Interdisciplinary Collaborative Cooperation
		External Cooperation and Resource Integration
Core	Teaching and Teaching Management	Competence in Classroom Design and Teaching Plan Development
		Application of Teaching Methods and Strategic Instruction
		Organization and Management of Educational Activities and Affairs
		Innovation in teaching and Learning
		Emergency Response Ability for In-Class Incidents
		Mastery of Teachers' Laws and Regulations
		Curriculum Development and Implementation
		Motivation, feedback, and the evaluation process
	Professional beliefs and teacher ethics	Application of new technologies and methods of learning
		Teacher Ethics and Values
	Student	Integration of Civic Education and Social Responsibility
		Awareness of Educational Equity and Fairness in the Distribution of Educational Resources
	Student	Character development and behavioral guidance for students



Level 1	Level 2	Level 3
Functional	development and psychological guidance	Attention to and promotion of students' overall development
		Identifying and intervening in students' mental health
		Classroom management skills
	Digital Skills	Digital teaching and technology application
		Information Collection, Processing, and Integration
		Integration and innovation of technology and education
		Evaluating and effectively utilizing modern educational technology tools and relevant sports data resources in teaching
	Leadership	Team Management and Coordination
		Decision Making & Problem Solving
		Ability to motivate students and positively influence team dynamics in sports education
		Instructional Leadership
	Demonstration of motor skills and training instruction	Demonstration of basic sports skills and techniques
		Sports training methods and practical instruction
		Rapid mastery of emerging sports
		Sport Events Management
		Officiating and Refereeing Knowledge and Practice
		Design of Teaching Methods for Physical Education, Sports, and Exercise
		Tests and evaluation in physical education, sport performance, physical fitness, and health
		The ability to apply the philosophy of physical education, sports, and the Olympics in working.
		Monitoring the Development Trends of International Sports
		Skills and Techniques in Selected Sports
		Knowledge and application of psychomotor skill classification frameworks in physical education
	Sports Science and Health Promotion Ability	Theory and knowledge of sports science
		Sports monitoring and evaluation
		Safety management and injury prevention
		Sports Nutrition Guidance



Level 1	Level 2	Level 3
		Knowledge and practice in digital and information technology related to health, exercise, and sport.
		Research and development in physical education, sport, and exercise
		Promoting and innovatively disseminating traditional sports culture within physical education curricula and community activities
		Extra-Curricular Activities Management,
		Sport team management, sports club management
		Scientific research methodology and data analysis ability
	Sports, academic research, and innovation ability	Academic Achievements and Program Application
		Teaching Innovation and Curriculum Reform
		Innovative practices and case sharing
		Ability to convert scientific research results
	Interdisciplinary integration	Integration and application of interdisciplinary knowledge

Generic Competencies

University PE teachers extend their role beyond teaching to societal impact, collaboration, and ongoing growth. They model educational values and maintain professional excellence.

1. Social Responsibility and Educational Impact

Link teaching with community needs by leading sports events, health initiatives, and policy application. Act as public educators through lectures, consultations, and media.

2. Lifelong Learning and Professional Competence Renewal

Continuously improve through reflection, training, and exchanges. Plan career paths, manage stress, and adapt to new trends in pedagogy and sports science.

3 Cross-role Communication and Collaboration

Work with colleagues, build strong teacher-student relationships, and partner with outside organizations to enrich teaching and research.

Core Competencies

Directly tied to teaching, student growth, and instructional leadership.

1. Teaching and Teaching Management

Deliver safe, inclusive, and engaging lessons; manage curriculum, events, emergencies, and feedback cycles. Innovate with technology and new methods while following regulations.

2. Professional Beliefs and Teacher Ethics



Uphold fairness, respect, and equity. Embed civic values and advocate for equal access to resources.

3. Student Development and Psychological Guidance

Support physical, cognitive, and social growth. Recognize mental health issues, provide guidance, and ensure a positive classroom climate.

4. Digital Skills

Use technology for teaching, analysis, and feedback while safeguarding data and equity.

5. Leadership

Coordinate teams, motivate students, mentor peers, and guide curriculum reforms using transparent, data-driven decisions.

Functional Competencies

PE-specific expertise ensuring professional distinction.

1. Demonstration of Motor Skills and Training Instruction

Demonstrate techniques, coach effectively, manage events, officiate fairly, and assess fitness and skills.

2. Sports Science and Health Promotion

Apply biomechanics, physiology, and psychology to safe training and injury prevention. Provide nutrition advice, use monitoring tools, conduct research, and manage teams or extracurricular programs.

3. Academic Research and Innovation

Conduct and apply research, publish findings, reform curricula, and share innovative practice.

4. Interdisciplinary Integration

Collaborate with experts in psychology, nutrition, medicine, and data science to create holistic programs.

Summary

The framework organizes PE teacher competencies into Generic, Core, and Functional domains, balancing educational values with technical expertise. It links teaching, research, and leadership with social responsibility, providing clear guidance for evaluation, development, and educational reform.

Discussion

The findings of this study confirm that the developed three-tier competency model comprising Generic, Core, and Functional competencies with 12 sub-dimensions and 63 observable indicators offers a contextually grounded framework for assessing and developing



university physical education (PE) teachers in Jiangxi Province (Dede, 2010). The model aligns closely with McClelland's Competency Theory, which emphasizes the behavioral attributes, motives, and skills that drive professional effectiveness. The results demonstrate that teacher performance is not solely determined by technical ability but also by underlying dispositions such as initiative, communication, and reflective practice, supporting McClelland's view that competencies predict superior performance beyond knowledge or qualifications (Chu, 2016).

At the same time, the integration of Marxist Human Development Theory reinforces the social and collective dimension of teacher growth, underscoring that individual competence development contributes to collective educational advancement. Likewise, Confucian Educational Philosophy adds moral and ethical depth, highlighting lifelong learning, moral cultivation, and social responsibility as essential components of a competent teacher. These theoretical linkages differentiate the present model from Western frameworks, embedding humanistic and ethical values that resonate with China's educational culture (Hargreaves, 2012).

When compared with international competency standards such as OECD Education 2030, AITSL, and InTASC (Council of Chief State School Officers, 2011), the present framework demonstrates conceptual convergence in areas of professional knowledge, reflective practice, and collaboration, while extending these through culturally specific emphases on virtue, social harmony, and moral leadership. Thus, the model bridges universal principles of teacher professionalism with Chinese educational traditions, contributing to the localization of global competency discourses.

Recommendation

1. Policy and Governance:

Education authorities should integrate the validated Key Competency Framework for University PE Teachers into provincial and institutional teacher standards. This would align recruitment, performance appraisal, and promotion criteria with evidence-based competency indicators. Policymakers should also establish continuous monitoring and evaluation systems that use the model as a benchmark for professional growth, ensuring consistency with the national teacher quality agenda and the Healthy China 2030 initiative.

2. Curriculum and Teacher Education Reform:

Universities and teacher education programs should redesign their PE curricula around the three-tier structure: Generic, Core, and Functional competencies to ensure that preservice and in-service teachers develop both disciplinary expertise and moral-professional literacy. The framework can guide course modules on reflective teaching, sports science, digital pedagogy, and moral cultivation, fostering balanced development of technical and ethical competence.

3. Professional Development and Institutional Practice:

Institutions should adopt the competency framework as a foundation for designing teacher professional development plans, mentoring systems, and classroom observation tools. Targeted workshops, peer coaching, and competency-based training should be implemented to address identified gaps in teaching innovation, leadership, and community engagement.

Future research should expand the model's application to other provinces and education levels, verifying its generalizability and supporting the national goal of cultivating high-quality, ethically grounded physical education professionals.

References

- Brislin, R. W. (1980). *Translation and content analysis of oral and written materials*. In H. C. Triandis & J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (Vol. 2, pp. 389–444). Allyn & Bacon.
- Casolo, F., Coco, D., Frattini, G., Vago, P., & Casolo, A. (2019). Effective teaching competencies in physical education. *Journal of Physical Education and Sport*, 19, 1806–1813. <https://doi.org/10.7752/jpes.2019.s5265>
- Chu, H. Q. (2016). The concept and essence of key literacy. *Journal of East China Normal University (Education Science Edition)*, (1), 1–3.
- Council of Chief State School Officers. (2011). *InTASC model core teaching standards: A resource for state dialogue*. Council of Chief State School Officers.
- Dede, C. (2010). Comparing frameworks for 21st-century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 51–76). Solution Tree Press.
- Hargreaves, A., & Fullan, M. (2012). *Professional capital: Transforming teaching in every school*. Teachers College Press.
- Liu, L., & Li, S. (2019). Exploration of the path of teachers' key competencies construction. *China Adult Education*, (4), 75–79.
- McClelland, D. C. (1973). Testing for competence rather than for "intelligence." *American Psychologist*, 28(1), 1–14. <https://doi.org/10.1037/h0034092>
- Ministry of Education of the People's Republic of China (MOE). (2011). *Professional standards for teachers* [in Chinese]. Ministry of Education of the People's Republic of China.
- Ministry of Education of the People's Republic of China (MOE). (2021). *Professional standards for teachers* [in Chinese]. Beijing Normal University Press.
- Organization for Economic Co-operation and Development (OECD). (2018). *The future of education and skills: Education 2030*. OECD Publishing.



United Nations Educational, Scientific, and Cultural Organization (UNESCO). (2019). *Framework for the implementation of education for sustainable development (ESD) beyond 2019*. UNESCO.