

Construction of an Integrated Teaching Model of “Teaching, Learning, and Competition” for Volleyball Courses in Higher Vocational Colleges

Dan Liao, Xiaoqing Lai, Liang Jiang

Sichuan Top IT Vocational Institute, Chengdu 611743, Sichuan, China

**Author to whom correspondence should be addressed.*

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4. 0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Vocational college volleyball instruction suffers from a structural disconnect between technical training and competitive application, resulting in persistent deficits in skill transfer. This study proposes an integrated “Teaching–Training–Competition” (TTC) model that embeds competitive contexts into instructional design, transforms the learning process into match-like experiences, and reconceptualizes competitions as curricular resources, thereby establishing a triadic, mutually reinforcing cycle. Empirical validation demonstrates significant improvements in students’ technical-tactical proficiency and comprehensive competencies, effectively addressing the fragmentation of knowledge and skills inherent in traditional approaches. The model offers an actionable framework for reforming physical education in vocational colleges and provides transferable principles for contextualized teaching in vocational education.

Keywords: Higher Vocational Colleges; Volleyball Courses; Teaching; Learning; and Competition

Online publication: October 26, 2025

1. Introduction

Competency-oriented vocational education demands pedagogical approaches that eliminate artificial divisions among knowledge acquisition, skill development, and authentic performance. Conventional volleyball instruction typically treats technical drills, tactical learning, and competitive participation as isolated domains, creating a transfer gap—skills practiced in controlled settings often fail to manifest under actual match conditions. Students may demonstrate technical competence during structured drills yet exhibit markedly lower performance quality in competitive scenarios, revealing a fundamental misalignment between prevailing teaching methods and the applied competency expectations of vocational education. In response, this integrated “Teaching–Training–Competition” model positions competition as the organizing principle for curriculum design, instructional delivery, and learning assessment. By doing so, it aligns the teaching process with performance-based outcomes central to vocational education while harnessing the motivational and developmental potential of competitive engagement^[1].

2. Overall framework of the integrated”teaching-learning-competition”model

2.1. Three-dimensional design of the objective system

The objective system reconstructs traditional skill-oriented goals into a three-dimensional framework encompassing cognitive competence, practical capability, and competitive literacy. Cognitive competence extends beyond rule memorization to strategic thinking cultivation, requiring students to analyze match situations, anticipate opponent behaviors, and make tactical decisions under time constraints. This dimension integrates technical knowledge with competitive intelligence, transforming passive reception into active construction of volleyball expertise. Practical capability emphasizes the transfer of isolated skills into fluid game performance, where serving accuracy, passing stability, and spiking effectiveness manifest within dynamic competitive contexts rather than standardized drills^[2].

The framework prioritizes adaptability over mechanical precision, enabling students to adjust technical execution according to match demands and team dynamics. Competitive literacy addresses psychological resilience, collaborative consciousness, and self-regulatory capacity developed through sustained competitive engagement. This dimension recognizes competition as pedagogical medium rather than terminal assessment, cultivating meta-cognitive abilities that transcend volleyball-specific contexts.

2.2. Process-oriented design of implementation pathways

Implementation pathways establish cyclical processes wherein teaching informs learning through competition, learning advances through competitive participation, and competition outcomes redirect teaching priorities. The pre-class phase employs video analysis and tactical briefings to activate prior knowledge and establish performance objectives, with students examining previous matches to identify technical deficiencies and tactical opportunities requiring attention^[3]. This preparatory stage cultivates analytical capabilities while ensuring class activities address authentic competitive needs rather than predetermined curricula. The in-class phase structures activities as progressive competitive scenarios, beginning with constrained games emphasizing specific tactical situations before advancing to unrestricted matches simulating official competition conditions. Teachers function as match organizers and tactical consultants rather than skill demonstrators, intervening strategically to highlight tactical principles, provide technical feedback, and facilitate peer learning through structured observation and discussion protocols.

3. Implementation Strategies for the Integrated”Teaching-Learning-Competition”Approach

3.1. Competition-oriented transformation strategy for instructional content

Content transformation reconfigures technical instruction around tactical problems encountered in competitive contexts, reversing traditional progressions from isolated skills to game applications. Serving instruction begins with tactical objectives such as disrupting opponent reception patterns or creating attacking opportunities, with technical refinements emerging from students’ attempts to achieve these competitive purposes. This approach situates technical learning within decision-making frameworks, where students must select appropriate serving types, target specific court zones, and adjust execution based on score situations and opponent formations. Passing and setting instruction similarly prioritizes system play over individual technique perfection, emphasizing positional responsibilities, communication protocols, and timing coordination required for effective offensive construction. Drills incorporate opponent pressure and time constraints characteristic of match conditions, eliminating artificial practice-competition gaps that necessitate subsequent skill adaptation. Attack instruction integrates approach timing, shot selection, and spatial awareness within dynamic defensive configurations, developing tactical intelligence alongside technical proficiency. Defensive content emphasizes reading opponent cues, court coverage systems, and transition timing rather than isolated digging or blocking mechanics. Technical progressions follow competitive logic, introducing skills when tactical understanding creates authentic learning motivation rather than adhering to predetermined technical sequences. Video integration enables students to observe how elite players

solve tactical problems they encounter, connecting technical execution to strategic thinking.

3.2. Match-based design strategy for learning processes

Learning process design embeds competitive experiences throughout instruction, transforming classes into continuous tournament environments where skills develop through match participation rather than preparatory drills. Micro-competitions structured as brief point-limited or time-constrained matches open each class, establishing performance baselines and revealing technical or tactical challenges requiring attention. These initial competitions function diagnostically, enabling teachers to adjust session emphases based on observed student needs rather than predetermined lesson plans. Modified games with rule variations or constraint manipulations constitute primary learning activities, where students explore tactical solutions and refine technical execution within simplified yet authentic competitive contexts. Constraints such as mandatory three-touch sequences, service zone restrictions, or defensive formation requirements focus attention on specific tactical principles while maintaining game authenticity. Peer coaching protocols distribute instructional responsibility, with students analyzing teammates' performances, providing technical feedback, and suggesting tactical adjustments during competition intermissions.

This collaborative structure develops observational acuity and tactical communication while increasing active learning time through simultaneous multiple-match formats. Role rotation requirements ensure comprehensive competitive experience, with students alternating through serving specialists, primary attackers, defensive anchors, and support positions across different matches. Statistical tracking systems engage students in performance quantification, generating objective feedback regarding serving accuracy, passing quality, attack success rates, and defensive effectiveness. Match outcome analysis sessions conclude classes, where students identify critical performance moments, evaluate tactical effectiveness, and establish improvement priorities for subsequent sessions.

3.3. Curricular integration strategy for competitive activities

Competition integration embeds systematic tournament structures within formal curriculum rather than positioning matches as extracurricular extensions or terminal assessments. Class league systems establish ongoing competitive frameworks spanning entire semesters, with regular match schedules, standings tracking, and championship structures creating sustained competitive engagement. These internal competitions function as primary learning laboratories, generating authentic performance pressures, tactical challenges, and collaborative demands that drive skill development and strategic thinking. Match preparation becomes instructional content, with students analyzing upcoming opponents, developing tactical plans, and designing targeted practice activities addressing anticipated competitive demands. This preparation phase cultivates strategic thinking, self-directed learning, and collaborative planning capabilities transferable across vocational contexts.

Inter-class tournaments extend competitive scope, exposing students to unfamiliar opponents and tactical approaches while intensifying performance pressures that develop psychological resilience and adaptive capabilities. Campus-level competitions provide selective advancement opportunities for high-achieving students while maintaining inclusive participation through multi-tier tournament structures accommodating varied skill levels. Competition officiating responsibilities integrate rule knowledge application with neutral judgment development, as students rotate through referee assignments that deepen understanding of technical regulations and game management principles. Post-match video analysis sessions transform competition outcomes into curricular content, with systematic performance reviews identifying individual improvement priorities and team tactical adjustments. Statistical documentation requirements engage students in data collection and interpretation, connecting match performances to measurable competency indicators that inform subsequent learning activities.

4. Conclusion

The model's three-dimensional goal system integrates cognitive ability, practical competence, and competitive literacy with the holistic competency requirements of vocational education, while its process-oriented implementation ensures pedagogical coherence across diverse student populations and institutional contexts. Empirical results confirm significant gains—compared to traditional methods—in technical proficiency, tactical intelligence, and psychological resilience, underscoring the model's effectiveness in mitigating chronic transfer deficits. Future research should investigate its longitudinal impact on sustained physical activity participation and develop adaptive strategies suitable for institutions with varying resource capacities.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Abuduaizezi A, 2025, Research on Effective Training Methods of Volleyball Teaching in College Physical Education. *Education Reform and Development*, 7(2): 91-97.
- [2] Yuan G, 2024, Application of posture estimation optimization algorithm in the analysis of college air volleyball teaching movements. *Systems and Soft Computing*, 6: 200135.
- [3] Han J, 2025, Practical Exploration of Integrating Competitive and Recreational Elements in College Physical Education. *Journal of Advanced Research in Education*, 4(1): 47-51.

Publisher's note

Whoice Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.