

A Study on the Construction of a “Learn-Practice-Compete-Evaluate” Teaching System for High School Physical Education Guided by Core Competencies

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Abstract: There is a conflict in the current PE curriculum between its goal of developing core competencies and the way it is taught, the latter being somewhat superficial. A teaching system called “Learn-Practice-Compete-Evaluate” is proposed as a solution to the structural dilemma described. In this paper, core competencies are examined at the theoretical level, and an operational framework for the LPCE teaching system is established by examining the four dimensions of “Learn,” “Practice,” “Compete,” and “Evaluate.” Internal mechanisms of closed-loop connections across all four dimensions and spiral progression among them are explained. Problem-based learning encourages deep understanding; step-by-step and progressively developing skill proficiencies; real competitions increase an individual’s enthusiasm for sport; and multi-stakeholder evaluation will produce diagnostic feedback. The framework developed will support curriculum reform efforts focused on developing physical literacy.

Keywords: Core competencies; High school physical education; Learn-Practice-Compete-Evaluate; Construction of teaching system

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1. Introduction

The Curriculum Standards for Physical Education and Health in Ordinary High Schools (2017 Edition, Revised in 2020) define the developmental objectives of physical education core competencies by outlining three key dimensions of curriculum implementation: sports ability, healthy behavior, and sports ethics. Currently, physical education instruction in most high schools remains relatively superficial, often characterized by a “skill-drill and test-oriented” approach, which insufficiently engages students’ intrinsic motivation and cognitive participation. In response to this limitation, the integrated teaching framework of “learn, practice, compete, and evaluate” has been proposed, aiming to replace the fragmented nature of existing practices with a more coherent and synergistic instructional model. However, within the academic

community, there has been a lack of systematic theoretical construction and empirical validation regarding how to establish a logically consistent and effectively articulated teaching system based on these four components. This study, grounded in the development of core competencies, investigates the structural framework and operational logic of the “learn-practice-compete-evaluate” teaching system, with particular attention to its conceptual boundaries, implementation pathways, and internal coherence.

2. Conceptual definitions and theoretical foundations

2.1. Dimensions and development pathways of core physical education competencies

The core competencies of sports cover three dimensions: athletic ability, healthy behavior, and sports ethics, which are generated through physical exercise and act as a whole on individual students. Sports ability focuses on physical fitness, sports cognition, and the application of skills and tactics. The cultivation of this dimension relies on long-term systematic skill practice and physical practice accumulation. Healthy behavior refers to the development of exercise habits, mastery of health knowledge, and psychological regulation during exercise. These qualities need to be cultivated synchronously in daily exercise experience and are difficult to be taught separately from actual activities. Sports morality includes three levels: sportsmanship, moral cultivation, and character shaping. Its development relies on internalizing the rules and role responsibilities in sports situations ^[1]. The cultivation of the three dimensions all needs to be embedded in real sports situations. Students can simultaneously achieve physical development, behavior development, and character shaping through participating in skill demonstrations, teaching competitions, and daily exercises, and the three are inseparable.

2.2. The pedagogical implications and structural characteristics of “learn-practice-compete-evaluate”

As an integrated teaching framework, “learn-practice-compete-evaluate” integrates the four aspects of learning, practice, competition, and evaluation into the same teaching unit for coordinated operation. The boundaries between each aspect are not completely separate, but are organically connected based on the development of students’ motor cognition and skill level improvement. The “learn” component emphasizes the active construction of sports knowledge and rule comprehension, requiring students to move from passive reception to active inquiry into movement principles. The “practice” component involves repeated execution of motor skills until automated execution is achieved through organized bodily repetition. The “compete” component centers on comprehensive application and adaptive decision-making in real or simulated settings, where motor skills are tested in changing adversarial environments. The “evaluate” component provides feedback on the first three components through process observation and outcome assessment. The four components exhibit a progressively unfolding trend in time series and are nested within each other in terms of functionality; each feedback of “evaluation” will recalibrate the starting point of “learning,” thus forming a dynamic iterative operating structure.

2.3. Three major theoretical pillars underpinning the system’s construction

The construction of the “learn-practice-compete-evaluate” teaching system mainly relies on constructivist learning theory, situational learning theory, and mastery learning theory. Constructivist learning theory emphasizes the active constructive role of learners in the process of acquiring motor skills—students’

understanding of motor techniques stems from the interaction between their own motor experience and existing experience, which provides a cognitive basis for the design of the “learning” stage. The theory of situational learning reveals the key value of real sports situations for skill transfer, which requires that the organization of “competitions” must be close to actual sports scenes rather than artificially simplified conditions. Mastering learning theory provides a flexible space in terms of the time dimension for the connection between “practice” and “evaluation.” It advocates giving students with different foundations sufficient learning time until they reach the established standard of action mastery ^[2].

3. The logical framework for constructing the “learn-practice-compete-evaluate” teaching system

3.1. A system design approach guided by core competencies

The system design concept guided by core competencies requires starting from three dimensions: athletic ability, healthy behavior, and sports ethics, and deducing specific tasks and operational standards for each link of “learn-practice-compete-evaluate.” The basic logic of this design concept is to break down literacy goals into observable and evaluative behavioral expressions in each lesson, and then transform these behavioral expressions into teaching priorities for each stage. The improvement of athletic ability requires sufficient cognitive input in the “learning” stage, sufficient repetition of movements in the “practice” stage, and real opportunities for application in the “competition” stage; The cultivation of healthy behavior relies on the continuous infiltration of exercise load, recovery strategies, and self-protection knowledge in the “practice” and “evaluation” stages; The cultivation of sports ethics is more embedded in the implementation of rules and role responsibilities in the “competition” and “evaluation” stages. The three dimensions of literacy goals are not evenly distributed, but are allocated differently in each stage based on the characteristics of different sports projects—the “competition” stage of ball sports emphasizes teamwork and fair competition, while the “practice” stage of track and field sports emphasizes perseverance and self-breakthrough.

3.2. The distinct functions of the four components: “Learn,” “Practice,” “Compete,” and “Evaluate”

The four stages of “learn-practice-compete-evaluate” each carry irreplaceable teaching functions, and their different functions are based on the cognitive input, action solidification, situational application, and information feedback that students experience in the process of mastering sports skills. The function of “learning” is to build a cognitive framework for action techniques, helping students establish correct action representations and logical rules in their minds; The function of “practice” is to facilitate the natural transformation of movements from conscious control to automated execution through organized and repetitive physical practice; The function of “competition” is to place skills in unpredictable adversarial or performance situations, test the stability and adaptability of movements, and expose technical defects that are not easily noticeable in simple practice; The function of “evaluation” is to collect information and make value judgments on the operational status of the first three stages, providing a basis for teaching adjustments. These four functional blocks are unfolded sequentially in the teaching process, and the output of each functional block becomes the processing object of the next functional block ^[3].

3.3. The operational mechanism of closed-loop integration and spiral progression among the four components

The four links are linked by evaluation information to form a closed-loop connection, and their operating mechanism is manifested as a spiral progression in the learning process. The output of “learning”—students’ understanding and initial operational level of movement techniques—directly determines the starting point and key direction of “practice.” The phased achievements of “practice” are tested in real sports situations during “competitions,” and the exposed movement defects and technical blind spots are fed back to the scope of “evaluation.” The diagnostic information generated by “evaluation” is re-input into the “learning” process, triggering a new round of cognitive adjustment and technical correction. The completion of each closed loop does not return to the starting point, and students have improved in action accuracy, stability, and application flexibility compared to the previous loop. As the teaching unit progresses, the cycle of closed-loop operation gradually lengthens, and the progressive steps are gradually raised.

4. Implementation pathways for the “learn-practice-compete-evaluate” teaching system

4.1. “Learn”: Problem-driven learning aimed at deep understanding

The “learning” stage replaces traditional classroom action explanation and demonstration imitation with a problem-driven approach. The starting point of the operation is that teachers design several progressive questions around the core action principles of sports projects, allowing students to actively call on existing exercise experience and form new action cognition in the process of trying to answer questions. Taking the teaching of one-handed shoulder shooting in basketball as an example, the teacher uses “why does the ball need to be pulled out through the fingertips” and “how does the force of lower limb extension transmit to the end of the arm” as guiding questions. Students gradually establish a spatial perception of the sequence of action force through holding the ball and repeatedly adjusting it. The design of the problem follows a three-layer progressive structure of “recognition of action principles → analysis of technical details → judgment of tactical situations”: the first layer of the problem points to the physical principles of a single action link, such as the temporal relationship between lower limb extension and arm extension during shooting; The second level of the problem focuses on optimizing the selection of technical details, such as the impact of different release angles on the flight trajectory of the ball; The third level of problem places the technique in an adversarial context, such as how to adjust the pace of the defender’s attack when approaching. The progress of each level of problem is triggered by students’ operational feedback - teachers observe students’ actions and decide whether to proceed to the next level of problem, while students who have not reached the current level of understanding continue to revisit the problem itself during operation ^[4].

4.2. “Practice”: Tiered and progressive practice focused on skill development

The “practice” stage breaks the traditional classroom practice mode of “unified content, unified progress,” and sets up four levels of “imitation perception–decomposition and freezing–combination and connection–complete automation” based on the formation rules of action skills. Students enter the corresponding level to practice according to their current mastery of actions, and flow upward after reaching the promotion standards. Taking the teaching of front-facing two-handed ball placement in volleyball as an example, students imitate the perception layer repeatedly and experience the limb positioning of arm clamping, wrist

pressure, and hitting position under bare-handed conditions. The teacher uses tactile cues in this layer—pasting marker stickers on the students’ forearm ball placement area to guide them to feel the contact between the ball and the marker point; The students who break down the freeze frame layer focus on solving the timing coordination between moving positioning and arm hitting. The practice form is changed to a three-step decomposition of “throwing the ball up, step pad hitting,” with brief pauses between each action to strengthen the memory of the action sequence; The combination connection layer requires students to continuously complete multiple ball dunks and attempt to place the ball in a designated area. At this stage, goal-oriented practice forms such as “ball dunking over the net” and “ball dunking into the box” are introduced, and spatial landing constraints are used instead of teacher’s language correction; Students in the complete automation layer enter multiple rounds of continuous ball dunking and changing direction ball dunking during movement, and their practice density and intensity increase synchronously. The promotion criteria between different levels are based on quantifiable motor performance; for example, students who imitate the perception level can be promoted to the decomposition freeze level if they reach the teacher’s preset motor specifications three times in a row in the assessment of manual movements. The role of teachers at different levels is adjusted according to the level changes, with lower levels focusing on the intuitive presentation of action essentials and physical assistance guidance, while higher levels focus on fine-tuning action details and optimizing exercise strategies ^[5].

4.3. “Compete”: Diverse competitive activities embedded in real-world contexts

The “competition” stage changes the traditional competition format of “unified rules and everyone on the same field.” Starting from the characteristics of the project, three competition forms are set up: “simplified condition competition,” “standard rule competition,” and “self-organized competition,” corresponding to the initial, middle, and advanced stages of students’ skill mastery. Different role tasks are set up within each form for students to match and choose according to their abilities. Taking the basketball teaching unit as an example, the simplified conditional game adopts a half-court three-to-three format, and the game rules are adjusted according to the actual level of students—changes in dribbling frequency limits, defensive distance regulations, scoring area division, and other conditions match the difficulty of the game with the students’ ability range. At this stage, each participating student needs to undertake two basic tasks: “attacking with the ball” and “running without the ball.” The teacher records the frequency of technical application and decision-making quality of each team on the sidelines. The standard rules game follows the full five-on-five regular rules, and students play dual roles as both on-field players and off-field observers during the game. The group that did not play is responsible for recording the execution of both sides’ offensive and defensive tactics, providing analysis materials for tactical discussions during the suspension period. The self-organized competition is organized by students to form their own teams, develop their own competition system, and take on the role of referee and record-keeping. Teachers only provide rule consultation and safety supervision during the process. After each competition format ends, a “field review” section is set up, where teachers and students jointly replay key moments from the competition, transforming technical errors and decision-making deviations that occur on the field into targeted content for the next practice session.

4.4. “Evaluate”: Collaborative evaluation by multiple stakeholders throughout the process

The “evaluation” stage changes the traditional evaluation method of “one-way scoring by teachers and

centralized final assessment,” embedding three types of evaluation subjects: teacher evaluation, student self-evaluation, and peer evaluation into the teaching process of each lesson. Each type of evaluation has its own responsibilities and mutually confirms each other, forming a process evaluation network covering the entire process of the “learning and practice competition.” Teacher evaluation focuses on the systematic observation of the standardization of technical movements and classroom participation attitudes. Three to five students are selected as key observation objects in each class, and their key performances in each stage of “learning-practice-competition” are recorded. The whole class coverage is completed within two weeks; The self-evaluation of students revolves around three aspects: “the technical movements I am most confident in this class,” “the difficulties I encountered in practice,” and “the degree to which I am engaged in the classroom.” Short descriptive sentences are recorded on the personal evaluation card to avoid vague grading; Peer evaluation is conducted in groups, where members evaluate each other’s performance in collaborative exercises and competitions from three dimensions: “cooperation awareness,” “responsibility,” and “helping others.” Specific behavioral descriptions are used instead of abstract judgments. The three types of evaluations share a set of evaluation scales, which include the level of motor skills, classroom participation attitude, cooperative performance, and progress rate within the framework. Each indicator is described by behavioral characteristics instead of level assignment, providing evaluators with evidence to rely on. Before the end of each class, an evaluation and organization section is set up. Students complete their personal evaluation cards, which are collected by the teacher and compared with their self-evaluation materials. Consensus information is extracted as the basis for the next teaching design adjustment. For example, when most students express confusion about a certain technical aspect in their self-evaluation, the teacher will add targeted questions in the “learning” section of the next class ^[6].

5. Conclusion

The construction of the “Learn-Practice-Compete-Evaluate” teaching system is not merely a combination of four discrete instructional stages; it represents a fundamental shift in teaching philosophy—from a unidimensional focus on skill acquisition to a multidimensional approach aimed at fostering comprehensive sports literacy. Within this new framework, core competencies serve as the value anchor, while learning, practice, competition, and evaluation each contribute distinct functions: progressive cognitive engagement, hierarchical skill development, competitive tension, and reflective assessment. Together, they form an integrated, dynamic, and organic whole. This pedagogical transformation aligns with curricular reforms that call for changes in instructional delivery and also repositions physical educators from mere implementers of prescribed content to active curriculum designers. The ultimate success of this system depends on teachers’ depth of understanding and their capacity to translate literacy-oriented concepts into classroom practice. Future research should continue to explore how institutional support and professional development can effectively empower teachers in this process.

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