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APPROACHES TO DEVELOPING CRITICAL THINKING IN PROSPECTIVE PHYSICAL EDUCATION TEACHERS

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Abstract. The article compares pedagogical approaches for developing critical thinking in prospective physical education teachers. A conceptual review, comparative synthesis and pedagogical modelling were used to examine five approaches: direct infusion of reasoning into disciplinary content, problem-based and game-based learning, cooperative dialogue, reflective and video-assisted inquiry, and critical inclusive pedagogy. Their learning mechanisms, instructional tools, expected thinking actions and implementation risks are differentiated. The analysis shows that no single approach addresses the full cycle of professional judgment. An integrated MOVE framework is proposed in which students perform, notice evidence, question interpretations, decide and justify, and transfer a revised solution. Two original illustrations and an approach matrix translate the synthesis into a format suitable for physical education teacher education. The model is intended for subsequent expert validation and empirical testing.

Keywords. critical thinking, physical education teacher education, pedagogical approach, problem-based learning, reflective practice, video inquiry, inclusive pedagogy.

ПОДХОДЫ К РАЗВИТИЮ КРИТИЧЕСКОГО МЫШЛЕНИЯ У БУДУЩИХ УЧИТЕЛЕЙ ФИЗИЧЕСКОЙ КУЛЬТУРЫ

Аннотация. В статье сопоставлены пять педагогических подходов к развитию критического мышления будущих учителей физической культуры: интеграция мыслительных операций в предметное содержание, проблемное и игровое обучение, диалогическое сотрудничество, рефлексивный видеоанализ и критическая инклюзивная педагогика. Предложена интегративная модель MOVE.

Ключевые слова. критическое мышление, подготовка учителя физической культуры, педагогический подход, проблемное обучение, рефлексия, инклюзивная педагогика.

Introduction. Physical education teacher education (PETE) prepares students to make decisions in conditions where evidence emerges through action. A lesson plan may need immediate revision when movement quality deteriorates, a task excludes part of the class, or a tactical solution fails. Critical thinking enables the teacher to interpret these signals, judge the adequacy of evidence, compare responses and explain why a revised decision is educationally and ethically defensible.

The policy context in Uzbekistan also supports this focus. The Law on Education identifies independent thinking and analysis among educational outcomes [12]. The Uzbekistan 2030 Strategy links the quality of higher education to human-capital development and wider engagement in physical culture and sport [13]. The Law on Physical Culture and Sport requires educational practice to account for individual abilities and health conditions [14]. These requirements place professional reasoning at the centre of PE teacher preparation.

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Research purpose and methodology. The purpose of the study is to classify and compare pedagogical approaches to critical-thinking development in PETE and to construct an integrative implementation model. The study used conceptual analysis, comparative synthesis of peer-reviewed research, content analysis of national policy documents and pedagogical modelling. The unit of analysis was an approach with a definable learning mechanism, a recognisable set of teaching tools and an observable contribution to professional judgment. The article is theoretical and methodological; it does not report an intervention effect.

Facione defines critical thinking as purposeful and self-regulatory judgment involving interpretation, analysis, evaluation, inference, explanation and self-regulation [1]. Abrami et al. found in a meta-analysis that critical-thinking instruction is stronger when explicit guidance is combined with dialogue and authentic application within subject content [2]. This finding is important for PETE because a general reasoning course may not transfer automatically to decisions about movement, safety, participation and assessment.

McBride conceptualises critical thinking in PE as reflective thinking used to make reasonable and defensible decisions about movement [3, p. 115]. Liu et al. subsequently found that preservice PE teachers could understand critical thinking in general terms while experiencing difficulty applying it consistently to teaching situations [4]. The educational task is therefore not simply to add higher-order questions. Students need repeated opportunities to use evidence from movement and teaching, expose their interpretation to scrutiny, act on a decision and revise it after observing consequences.

A pedagogical approach is treated here as a coherent relationship among learning goals, roles, tasks, interaction and assessment. The same technique may serve different approaches. Video, for example, can be used for imitation in a direct model or for evidence testing in a reflective inquiry model. The defining issue is what students are expected to do with the information.

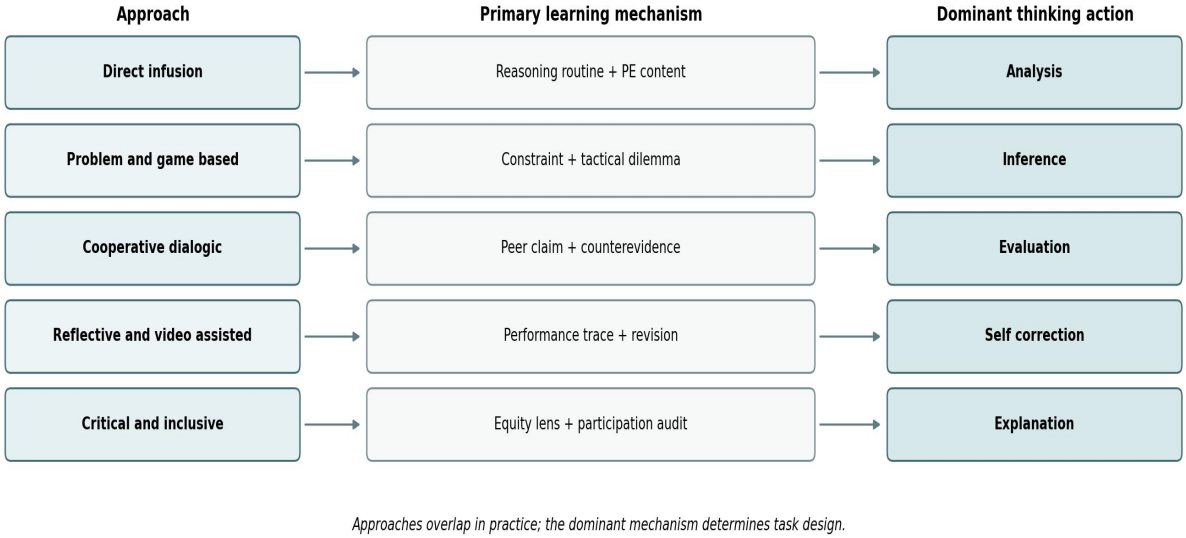


Figure 1 Taxonomy of approaches and their dominant reasoning mechanisms

Comparative Analysis of Pedagogical Approaches

Direct infusion approach. The direct infusion approach teaches a reasoning operation explicitly and immediately embeds it in PE content. An educator may model the difference between observation and inference, demonstrate criteria for source reliability, or use a claim-evidence-reasoning routine during movement analysis. Students then apply the same routine to a sprint start, a warm-up plan or an assessment decision. Explicitness prevents critical thinking from remaining an implicit expectation. Its limitation is over-scaffolding: when every question and criterion is supplied, students may reproduce a template without selecting evidence independently. Scaffolds should therefore be faded across repeated tasks.

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Problem-based and game-based learning organise instruction around an uncertain situation that admits several defensible responses. In a modified game, students can manipulate space, player numbers or scoring rules, predict an effect and test the prediction through play. Pill and SueSee explain that questioning and problem solving can place critical thinking inside PE activity rather than beside it [5]. Hidayat et al. reported significant improvement in elementary pupils' critical-thinking scores after a motivating active-learning model in PE, although the school-level findings should not be transferred directly to PETE without further study [6]. The approach is strongest when the problem includes clear constraints and decision criteria; an unstructured game may increase activity without producing analysis.

The cooperative-dialogic approach treats a claim as something to be explained and tested by others. Structured roles such as performer, observer, evidence checker and alternative designer create individual accountability within group inquiry. Reviews of cooperative learning in PE report contributions across cognitive, physical, social and affective domains, but they also emphasise implementation quality and adequate duration [7; 8]. For critical thinking, peer agreement is not the goal. Students should identify the evidence behind a claim, ask whether it is sufficient and propose a better-supported alternative.

Comparative analysis of pedagogical approaches continued

Reflective inquiry links a planned action with its observed consequences. Video-supported microteaching is especially useful because it slows down complex events and allows the student to revisit positioning, feedback, participation and safety decisions. Reflection is analytical when it identifies an initial intention, selects a relevant episode, interprets the evidence and specifies a revised action. Capella-Peris et al. found that critical-pedagogy experiences supported teaching competency in a mixed-method study of 20 PETE students, while reflective journals clarified how change developed [9]. Schwender et al.'s study of 18 PE teachers also shows that embodied experiences can prompt reflection when instructional design directs attention to perception, perspective and interaction [10]. Video does not interpret itself; without a question and criterion, replay may reinforce first impressions.

Critical and inclusive pedagogy examines how apparently neutral tasks distribute participation, recognition and authority. Students analyse whose prior experience is rewarded, which bodies are treated as the norm, and whether assessment allows different learners to demonstrate meaningful progress. Lynch and Ovens describe critical pedagogy in PE as participatory work that connects knowledge with questions of power, equity and social transformation [11]. Within PETE, this approach expands critical thinking from technical efficiency to ethical justification. Its practical requirement is specificity: students need observable participation data, learner perspectives or assessment evidence rather than general statements about fairness.

Comparative matrix of approaches

Approach	Core mechanism	Typical PETE tool	Main CT action	Implementation risk
Direct infusion	Makes reasoning steps visible	Claim evidence reasoning routine	Analysis	Mechanical use of a fixed template
Problem and game based	Tests choices under constraints	Modified game or professional dilemma	Inference	Activity without explicit evidence criteria
Cooperative dialogic	Exposes claims to peer scrutiny	Role based inquiry group	Evaluation	Consensus or dominant voices replace critique

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Reflective and video assisted	Compares intention with observed action	Video microteaching and stimulated recall	Self correction	Description without revision
Critical and inclusive	Questions participation and assessment norms	Participation audit or learner perspective	Explanation	Abstract equity claims without data

The MOVE framework converts the synthesis into a repeatable learning sequence. MOVE begins with performance because PE knowledge is enacted through the body and environment. Students then Notice selected evidence rather than relying on memory alone. They Question the first interpretation by checking assumptions and considering counterevidence. They Decide by comparing alternatives against safety, learning and inclusion criteria. Finally, they Transfer the revised decision to a new movement task, lesson segment or learner group. Transfer generates a new performance and reopens the cycle.

The matrix shows complementary strengths. Direct infusion clarifies how reasoning works, whereas problem and game-based learning creates a need for judgment. Cooperative dialogue tests that judgment socially. Reflective and video-assisted inquiry uses observable consequences to revise it, and critical inclusive pedagogy broadens the criteria by which a decision is judged. Selecting one approach for an entire programme would leave part of the professional reasoning cycle underdeveloped.

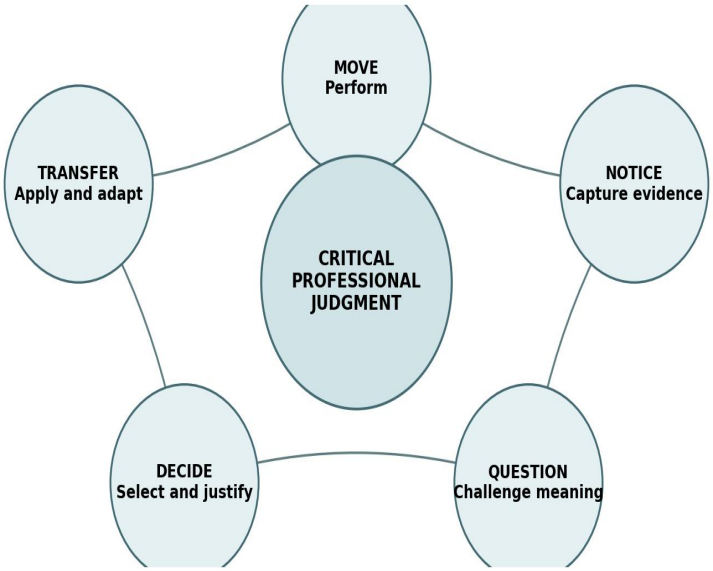


Figure 2 MOVE inquiry cycle for integrated critical thinking in PETE

Application of the move framework in pete. Movement analysis seminar. Students perform or observe a short movement task, such as a volleyball forearm pass under changing spatial constraints. During Notice, each group records only two agreed indicators: platform angle and ball trajectory. During Question, students separate what the video shows from causal interpretations and identify missing information. During Decide, they compare a technical adjustment with a task-constraint adjustment. During Transfer, the selected change is tested with a new partner or distance. The direct-infusion routine structures evidence use, while the modified task supplies a genuine problem.

Microteaching and reflective practice. A ten-minute micro-lesson is recorded from a fixed viewpoint. Before viewing, the prospective teacher states one intended participation pattern and one feedback goal. The first viewing is descriptive; the second uses a coding sheet for teacher position, feedback recipient and inactive time. A peer asks for evidence behind one interpretation and proposes an alternative explanation. The teacher selects one revision and reteaches a short segment. This design

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prevents reflection from ending in retrospective commentary and creates a visible link between judgment and changed practice.

Inclusive lesson design. Students receive a class profile containing varied readiness, a temporary movement restriction, unequal prior sport experience and limited equipment. They audit an initial task for entry points, risk, recognition and opportunities to contribute. Each group must preserve the same learning purpose while proposing two participation routes and a shared assessment criterion. Learner-perspective cards are then introduced as counterevidence. The group revises its plan and explains which assumption changed. Critical inclusive pedagogy determines the evaluative lens, while problem-based learning and dialogue organise the reasoning process.

Assessment should focus on the quality of judgment rather than on the fluency of discussion. A student may speak confidently while using weak evidence, or perform well while being unable to explain why a method is safe and appropriate. The following analytic criteria can be used with written cases, microteaching, video analysis and practicum observation.

The rubric should be introduced before the task and used again after revision. Evidence from different sources improves validity: a written response reveals the structure of reasoning, video-supported microteaching shows whether judgment guides action, and reflective commentary demonstrates self-correction. Scores should not be inferred from motor skill alone because critical professional judgment concerns the defensibility of pedagogical decisions.

Criterion	Developing performance	Competent performance	Evidence source
Problem framing	Repeats the visible issue	Defines the decision, constraints and stakeholders	Case annotation
Evidence use	Lists observations without checking relevance	Selects relevant evidence and names uncertainty	Evidence log or video code
Alternatives	Offers one familiar response	Compares at least two feasible responses	Decision matrix
Justification	States a preference	Links the selected response to safety, learning and inclusion	Oral or written rationale
Self correction	Describes the outcome	Revises a claim and specifies the next action	Reflection and reteaching

Conditions for implementation. Successful implementation requires curriculum alignment, educator modelling and repeated cycles across courses. One isolated workshop may familiarise students with terminology but cannot establish transfer. PETE educators should coordinate common reasoning language, use tasks of increasing uncertainty and preserve time for a second attempt. Digital video requires consent, secure handling and narrowly defined observation targets. Cooperative work requires individual accountability, while inclusive analysis requires concrete learner evidence. These conditions turn an attractive method into a credible educational approach.

Discussion. The comparative analysis indicates that approaches differ primarily in the mechanism by which they make judgment available for examination. Direct infusion makes the reasoning procedure explicit. Problem-based and game-based learning tests reasoning in action. Cooperative dialogue supplies counterarguments. Reflective video inquiry preserves evidence for revision. Critical

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inclusive pedagogy changes the criteria of a defensible decision by including participation and equity. Their contributions are cumulative rather than interchangeable.

The MOVE cycle offers a practical way to combine these contributions without creating a separate critical-thinking subject. A movement episode or teaching attempt produces evidence; a guided question opens interpretation; dialogue and criteria support a decision; a second attempt tests transfer. The cycle also preserves PE lesson time because reasoning is organised around short observation and revision points connected directly to activity.

The proposed taxonomy has limitations. It is a conceptual synthesis and does not establish the comparative effectiveness of the approaches in Uzbekistan. The categories overlap, and outcomes will depend on task quality, educator expertise and implementation fidelity. Further research should use expert validation to refine the matrix, pilot the MOVE sequence in a PETE module and examine change through scenario tests, observed teaching, reflective writing and student interviews.

Conclusion. Five approaches provide distinct routes to critical-thinking development in prospective PE teachers: direct infusion, problem-based and game-based learning, cooperative dialogue, reflective and video-assisted inquiry, and critical inclusive pedagogy. Each approach develops a different part of professional judgment and carries a specific implementation risk. An integrated design is therefore more defensible than reliance on one method.

The MOVE framework connects performance, evidence, questioning, justified decision and transfer. Used across disciplinary courses and teaching practice, it can help prospective teachers examine movement, safety, participation and assessment with the same disciplined reasoning process. Its next stage is empirical validation in the context of higher PE education.

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