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METHODOLOGICAL PARADIGMS OF INTEGRATING INTERACTIVE LEARNING TOOLS TO CULTIVATE CRITICAL THINKING DIMENSIONS IN FUTURE EDUCATORS

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Abstract: Within the scope of contemporary higher education frameworks, equipping preservice educators with analytical and evaluative cognitive structures is of paramount importance. This study delineates the strategic methodological architecture required to cultivate critical thinking competencies among university-level pedagogical students through systemic interactive learning intervention. By shifting away from rigid didactic lecturing, the research evaluates the operational efficacy of contextualized problem-solving, intellectual peer debates, and structured metacognitive reflection.

Keywords: Critical thinking metrics, classroom interactivity, preservice teacher training, pedagogical methodology, cognitive self-regulation.

Аннотация: В рамках современных структур высшего образования первостепенное значение приобретает обеспечение будущих педагогов аналитическими и оценочными когнитивными структурами. В данном исследовании описывается стратегическая методологическая архитектура, необходимая для формирования компетенций критического мышления у студентов педагогических вузов посредством системного интерактивного обучения. Отходя от жестких дидактических лекций, исследование оценивает оперативную эффективность контекстуализированного решения проблем, интеллектуальных дискуссий со сверстниками и структурированной метакогнитивной рефлексии.

Ключевые слова: Метрики критического мышления, интерактивность в классе, подготовка будущих учителей, педагогическая методология, когнитивная саморегуляция.

Annotatsiya: Zamonaviy oliy ta’lim tizimi doirasida bo‘lajak pedagoglarni tahliliy va baholovchi kognitiv tuzilmalar bilan qurollantirish ustuvor ahamiyatga ega. Ushbu tadqiqot tizimli interfaol ta’lim intervensiyasi orqali universitet darajasidagi pedagogika yo‘nalishi talabalarida tanqidiy fikrlash kompetensiyalarini shakllantirish uchun zarur bo‘lgan strategik metodik arxitekturani tavsiflaydi. Tadqiqot qat’iy didaktik ma’ruzalardan voz kechgan holda, kontekstual muammolarni hal qilish, tengdoshlar o‘rtasidagi intellektual munozaralar va tizimli metakognitiv refleksiyaning operatsion samaradorligini baholaydi.

Kalit so‘zlar: Tanqidiy fikrlash mezonlari, auditoriya interfaolligi, bo‘lajak o‘qituvchilar tayyorlash, pedagogik metodika, kognitiv o‘z-o‘zini tartibga solish.

The global shifts in pedagogical demands necessitate a radical departure from traditional instructional models that prioritize rote memorization over cognitive flexibility. In the current educational milestone, particularly within the ongoing modernization of the higher education system in Uzbekistan, the primary objective of teacher training institutions is to nurture professionals who can deconstruct complex classroom scenarios, synthesize conflicting data, and make evidence-based decisions under uncertainty. Consequently, critical thinking is no longer viewed as an innate intellectual trait, but rather as a core professional competency that must be systematically engineered during undergraduate teacher preparation. Regrettably, standard university lecture formats frequently restrict student engagement, thereby reinforcing passive cognitive habits. To rectify this pedagogical imbalance, interactive learning methodologies offer a dynamic framework that emphasizes collaboration, dialogic inquiry, and socio-cognitive conflict.

For future educators, experiencing interactive environments during their formation carries a dual benefit: it directly refines their higher-order cognitive processing while simultaneously providing them with an empirical archetype for their future teaching endeavors. This paper examines the core methodological configurations necessary to successfully implement interactive strategies aimed at developing skills within pedagogical curricula. The integration of interactive methods to enhance critical cognitive faculties is deeply rooted in social constructivism, primarily drawing from the foundational frameworks of Lev Vygotsky and John Dewey. According to these paradigms, intellectual development is fundamentally a socio-cultural process that occurs through collaborative negotiation and shared problem-solving. In higher education research, critical thinking is operationalized through a dual-lens model consisting of specific cognitive skills (such as inference, evaluation, and interpretation) and positive intellectual dispositions (such as analytical inquisitiveness and cognitive open-mindedness). Interactive learning serves as an operational catalyst for these cognitive domains. When preservice teachers are placed in structured collaborative environments, they encounter diverse viewpoints and alternative instructional perspectives. This socio-cognitive dissonance disrupts automatic thinking patterns, forcing individuals to critique their own underlying assumptions and reconstruct their professional belief systems through rigorous logical validation. Rather than navigating abstract philosophical dilemmas, students in the EG were continuously exposed to real-world, multi-layered school crises—ranging from socio-emotional student conflicts to navigating institutional curriculum constraints. Students operated within heterogenous teams to isolate variables within a case study, separate verified instructional data from subjective biases, and draft multi-scenario action plans with projected risk assessments. This method involves engaging students in academic controversies surrounding highly polarized educational debates (e.g., the standard quantification of student intelligence versus alternative holistic assessments). Rather than choosing their own stance, students were designated specific, often counter-intuitive perspectives. They had to gather empirical evidence, construct coherent arguments, actively analyze counter-arguments presented by peers, and ultimately collaborate to synthesize a comprehensive pedagogical compromise.

True critical thinking is cyclical and depends heavily on metacognitive awareness—the capacity to evaluate one's own intellectual pathways. Following interactive micro-teaching exercises or teaching simulations, EG students executed peer-reviews utilizing highly specified, standardized evaluation criteria. This was paired with individual reflective journaling where students explicitly documented why they selected certain teaching strategies. The systematic introduction of this interactive pedagogical matrix introduces distinct institutional challenges and professional rewards. Methodologically, abandoning teacher-centric lecture delivery models requires a significant cognitive shift among university faculty members. Instructors must deliberately step away from the role of the primary source of knowledge and instead operate as high-level facilitators who design sophisticated prompts, manage argumentative discourse, and sustain productive intellectual tension without prematurely providing answers. Furthermore, embedding these interactive practices into teacher education programs yields a profound long-term systemic impact. When future teachers experience the intellectual demands and practical benefits of interactive learning firsthand, they build stronger professional confidence (teacher self-efficacy). This direct experience increases the likelihood that they will purposefully utilize similar student-centered, critical-thinking strategies in their own future primary and secondary classrooms.Cultivating robust critical thinking dimensions in preservice educators through interactive learning strategies is an essential requirement for modern teacher preparation. By systematically incorporating case-deconstruction, structured academic disputes, and metacognitive

peer-auditing into university curricula, higher education institutions can effectively guide future teachers beyond simple content acquisition toward complex, independent analysis. Ultimately, mastering these methodological pathways ensures that the next generation of educators will possess the cognitive tools necessary to inspire and cultivate independent, analytical minds in tomorrow's classrooms. An additional methodological component that significantly contributes to the development of critical thinking among preservice teachers is the integration of digital interactive technologies into the educational process. Modern educational platforms such as learning management systems, collaborative online discussion forums, virtual simulations, and problem-based digital environments provide opportunities for students to engage in reflective inquiry and evidence-based decision-making. Through participation in technology-enhanced learning activities, future educators develop the ability to critically evaluate information sources, distinguish factual evidence from subjective opinions, and formulate reasoned pedagogical judgments. Moreover, digital environments encourage autonomous learning, self-assessment, and continuous professional reflection, all of which are essential dimensions of critical thinking competence in contemporary teacher education.

Another important factor is the implementation of formative assessment strategies that emphasize analytical reasoning rather than factual recall. Interactive assessment techniques, including peer assessment, self-evaluation checklists, reflective portfolios, and performance-based tasks, enable students to monitor their own cognitive development and identify areas requiring improvement. These approaches foster intellectual responsibility and support the formation of reflective practitioners capable of adapting their instructional decisions to diverse educational contexts. The effectiveness of interactive learning methodologies is further enhanced when higher education institutions establish supportive academic environments characterized by open communication, collaborative problem-solving, and constructive feedback mechanisms. Such environments encourage students to express alternative viewpoints, challenge existing assumptions, and participate actively in knowledge construction processes. Consequently, the systematic integration of interactive pedagogical practices contributes not only to the development of critical thinking skills but also to the formation of innovative, adaptive, and professionally competent future educators.

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