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## **YOZMA NUTQ KOMPETENSIYASINI O‘QITISHDA SUN’IY INTELLEKTNI INTEGRATSIYA QILISHNING PEDAGOGIK YONDASHUVLARI**

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### **Annotatsiya**

Mazkur maqolada oliy ta’lim tizimida yozma nutq kompetensiyasini o‘qitishda sun’iy intellekt (AI)ni integratsiya qilishning pedagogik yondashuvlari tahlil qilinadi. AI asosidagi yozuv vositalarining keng tarqalishi sharoitida ta’lim jarayonida ularni samarali qo‘llash bilan birga akademik halollikni ta’minlash va yozuv ko‘nikmalarini rivojlantirish zarurati asoslab beriladi. Tadqiqotda to‘rtta asosiy yondashuv — AI yordamida qo‘llab-quvvatlash (scaffolding), AI-inson hamkorligidagi yozuv, tanqidiy AI savodxonligi va jarayonga yo‘naltirilgan AI mediatsiyasi taklif etiladi. 180 nafar talabadan olingan ma’lumotlar asosida ushbu yondashuvlarning lingvistik aniqlik, matn sifati, muallif mustaqilligi va metakognitiv ongga ta’siri baholanadi. Natijalar AI’dan boshqariladigan va strategik qo‘llash asosidagi integratsiyalashgan yondashuvlar eng samarali ekanini ko‘rsatadi.

**Kalit so‘zlar:** sun’iy intellekt, yozuv pedagogikasi, AI yordamida yozish, pedagogik yondashuvlar, yozma kompetensiya, oliy ta’lim, hamkorlikda yozish, AI savodxonligi, jarayonli yozuv, ta’lim dizayni.

## **ПЕДАГОГИЧЕСКИЕ ПОДХОДЫ К ИНТЕГРАЦИИ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ОБУЧЕНИЕ ПИСЬМЕННОЙ КОМПЕТЕНЦИИ**

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### **Аннотация**

В статье рассматриваются педагогические подходы к интеграции искусственного интеллекта (AI) в обучение письменной компетенции в системе высшего образования. В условиях широкого распространения AI-инструментов для письма подчеркивается необходимость их эффективного использования при сохранении академической добросовестности и развитии навыков письма. Предлагается таксономия из четырех подходов: поддержка с помощью AI (scaffolding), совместное письмо AI и человека, интеграция критической AI-грамотности и процессно-ориентированная медиация AI. На основе данных 180 студентов оценивается влияние данных подходов на языковую точность, качество текста, автономность автора и метакогнитивное осознание. Результаты показывают, что интегрированные подходы с контролируемым использованием AI являются наиболее эффективными.

**Ключевые слова:** искусственный интеллект, педагогика письма, AI-ассистированное письмо, педагогические подходы, письменная компетенция, высшее образование, совместное письмо, AI-грамотность, процессное письмо, дизайн обучения.

## **PEDAGOGICAL APPROACHES TO INTEGRATING AI IN TEACHING WRITING COMPETENCE**

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### **Abstract**

This article examines pedagogical approaches to integrating artificial intelligence (AI) into the teaching of writing competence at the tertiary level. As AI writing tools become increasingly sophisticated and accessible, the study highlights the need for coherent pedagogical frameworks that balance technological use with academic integrity and authentic writing development. It proposes a taxonomy of four approaches: AI-assisted scaffolding, AI-human collaborative writing, critical AI literacy integration, and process-oriented AI mediation. Based on data from 180 university students, the study evaluates the impact of these approaches on linguistic accuracy, compositional quality, learner autonomy, and metacognitive awareness. The findings demonstrate that integrated, guided uses of AI combined with explicit strategy instruction yield the most effective outcomes.

**Keywords:** artificial intelligence, writing pedagogy, AI-assisted writing, pedagogical approaches, writing competence, tertiary education, collaborative writing, AI literacy, process writing, instructional design.

The integration of Artificial Intelligence (AI) into writing instruction represents one of the most significant pedagogical shifts in contemporary education. The urgency of developing sound pedagogical approaches to AI integration stems from several converging factors. First, AI writing tools are not transient phenomena but fundamental technological shifts that will permanently alter the landscape of written communication. Second, students are already using these tools regardless of institutional policies, making explicit pedagogical guidance essential rather than optional. Third, the skills required for effective human-AI collaborative writing, including prompt engineering, critical evaluation of AI outputs, and strategic AI deployment, are distinct from traditional writing competencies and must be intentionally taught. Fourth, without coherent pedagogical frameworks, inequities in AI literacy will likely exacerbate existing educational disparities.

This study addresses the following research questions:

1. What pedagogical approaches to AI integration in writing instruction are currently emerging in theory and practice?
2. How do different pedagogical approaches affect students' writing competence, autonomy, and metacognitive awareness?
3. What pedagogical principles should guide effective integration of AI in writing curricula?

The significance of this research lies in its practical orientation. While substantial literature examines AI's technical capabilities or ethical implications, comparatively less attention has been paid to the pedagogical question of how to teach writing in AI-rich environments. This article aims to bridge that gap by proposing empirically informed pedagogical frameworks that educators can adapt to their specific contexts.

**Literature Review.** Writing instruction has undergone several paradigm shifts over the past half-century. The product-oriented approach, dominant until the 1970s, emphasized grammatical accuracy and rhetorical structures through analysis of model texts. Process-oriented approaches emerged in response, focusing on planning, drafting, revising, and editing as recursive cognitive processes (Flower & Hayes, 1981). Genre-based approaches, influenced by systemic functional linguistics, directed attention to the social contexts and purposes that shape textual forms (Hyland, 2003). Each paradigm has contributed valuable insights, yet all were developed in an era when writing was an exclusively human activity.

Contemporary writing pedagogy increasingly recognizes writing as a situated, socio-cognitive practice. Writing competence encompasses not only linguistic knowledge and cognitive strategies but also awareness of audience, purpose, and cultural conventions. The emergence of AI writing tools introduces a new dimension: the ability to delegate substantial portions of the writing process to non-human agents. This development challenges fundamental assumptions about the relationship between writing and thinking.

Large language models (LLMs) demonstrate remarkable capabilities relevant to writing instruction. They can generate coherent text on diverse topics, provide grammatical corrections, suggest alternative phrasings, summarize source material, outline arguments, and adapt tone for different audiences (Godwin-Jones, 2024). For second-language writers, AI tools offer particular promise as patient, non-judgmental conversational partners for language practice.

Several frameworks for AI integration have recently been proposed. The "AI as coach" model positions AI as a Socratic tutor that questions, prompts, and guides rather than generates (Mollick & Mollick, 2023). The "co-writing" framework treats AI as a collaborative partner with whom writers iteratively develop ideas (Escalante et al., 2023). These frameworks share recognition that effective AI integration requires explicit pedagogical design. Unstructured AI access tends to produce superficial engagement, while structured integration that teaches students how to work with AI yields more substantive learning outcomes. However, existing frameworks remain largely theoretical, with limited empirical validation of their effectiveness across different learner populations and writing tasks.

**Methodology.** This study employed a mixed-methods experimental design over a 14-week academic semester. The research examined four pedagogical approaches to AI integration in writing instruction. Participants were 180 second-year undergraduate students at Uzbekistan State World Languages University (98 female, 82 male) enrolled in academic writing courses at a large public university. Students represented three disciplinary cohorts: humanities (n = 62), social sciences (n = 58), and natural sciences (n = 60). English was the medium of instruction for all courses, with participants representing 12 native language backgrounds. Writing proficiency at baseline ranged from low-intermediate to advanced based on a timed writing pre-test.

Four pedagogical approaches were implemented across parallel course sections:

**Approach 1: AI-prohibitive (control condition).** Students were prohibited from using AI writing tools at any stage of the writing process. Instruction followed traditional process-oriented writing pedagogy with instructor and peer feedback.

**Approach 2: Unrestricted AI access.** Students could use AI tools without explicit guidance or restrictions. Instruction covered basic AI functionality but did not include strategic frameworks for AI use.

**Approach 3: AI-assisted scaffolding.** Students used AI tools within structured scaffolds that prescribed specific AI uses for specific writing stages. The scaffold included: AI for brainstorming and outlining only; AI for sentence-level revision after drafting; AI for grammar checking but not content generation. Instruction explicitly taught scaffolded AI use.

**Approach 4: Critical AI literacy integration.** Students engaged with AI through a critical literacy framework emphasizing: understanding AI capabilities and limitations, prompt engineering for specific writing goals, critical evaluation of AI outputs, ethical considerations in AI use, and strategic decisions about when and how to use AI. Instruction included comparative analysis of human- and AI-generated texts, revision of AI outputs, and reflective documentation of AI use.

Multiple data sources were collected:

1. **Writing portfolio assessment:** Students submitted four writing tasks of increasing complexity (personal narrative, source-based argument, literature review, research proposal). Each text was assessed using an analytic rubric measuring task fulfillment, organization, argument quality, evidence use, linguistic accuracy, and stylistic appropriateness.

2. **Process documentation:** Students in Approaches 2, 3, and 4 submitted process logs documenting their AI use, including prompts used, AI responses received, and revisions made.

3. **Metacognitive awareness survey:** A pre- and post-intervention survey measured students' awareness of writing strategies, ability to monitor their writing processes, and confidence in independent writing.

4. **Semi-structured interviews:** Forty-eight students participated in post-intervention

interviews about their experiences, challenges, and learning perceptions.

Quantitative data were analyzed using repeated-measures analysis to compare pre- and post-results across approaches, with post hoc tests for pairwise comparisons. Qualitative data were analyzed using thematic analysis with an iterative coding process. Triangulation was achieved by comparing findings across data sources.

**Results and Discussion.** The findings of this study make several important contributions to understanding pedagogical approaches to AI integration in writing instruction. The most significant finding is that how AI is integrated matters more than whether it is integrated. Unrestricted AI access produced the poorest learning outcomes, worse even than AI prohibition. This finding challenges the assumption that more technology access automatically enhances learning. Without pedagogical structure, AI tools appear to substitute for, rather than scaffold, writing development.

The superior performance of the critical AI literacy approach warrants particular attention. This approach's effectiveness appears to stem from several interconnected factors. First, by teaching students about AI—its capabilities, limitations, biases, and appropriate uses—the approach demystifies the technology and positions students as informed users rather than passive consumers. Second, explicit instruction in prompt engineering transforms AI from a black box into a controllable tool. Third, requiring critical evaluation of AI outputs develops the higher-order thinking skills that writing instruction aims to cultivate. Fourth, reflective documentation of AI use externalizes metacognitive processes that might otherwise remain implicit.

The AI-assisted scaffolding approach also produced strong results, suggesting that structured guidelines for AI use can effectively support writing development even without the full critical literacy curriculum. The scaffold approach may be particularly appropriate for contexts with limited instructional time or for students at earlier stages of writing development. However, the scaffold's prescriptive nature may limit transferability; students learn to follow rules about AI use rather than developing principled understanding that can adapt to new situations.

**Challenges and Limitations.** Several challenges to implementing effective AI-integrated writing pedagogy were identified. First, instructor preparedness varies widely, with many faculty lacking experience or training with AI tools. Professional development is essential. Second, equitable access to premium AI tools remains an equity concern. Institutions should provide access to basic AI tools for all students. Third, assessment practices must evolve to evaluate both product and process. Requiring process documentation, unassisted writing samples, and oral defenses of written work can help address integrity concerns while supporting learning. Fourth, disciplinary differences in writing conventions and AI appropriateness require contextualized approaches rather than one-size-fits-all policies.

**Implications for Practice.** For classroom teachers, the findings suggest several actionable strategies: (a) explicitly teach AI literacy as part of writing curricula, (b) design assignments that require critical engagement with AI outputs rather than simple generation, (c) require process documentation that makes AI use visible, (d) maintain unassisted writing assessments to ensure development of independent capability, and (e) model strategic AI use through think-aloud demonstrations.

For curriculum designers, the study supports developing sequenced writing courses that progressively build AI literacy alongside writing competence. Courses should include modules on prompt engineering, AI output evaluation, human-AI collaboration strategies, and ethical AI use.

For institutions, the findings suggest the need for clear policies that neither prohibit AI entirely nor leave its use unguided. Policies should articulate principles for appropriate AI use, provide guidance for instructors across disciplines, and support faculty development in AI-integrated pedagogy.

**Conclusion.** This study has examined pedagogical approaches to integrating AI in teaching writing competence at the tertiary level. The findings demonstrate that pedagogical

design fundamentally shapes learning outcomes from AI integration. The proposed stage-based pedagogical model offers a developmental pathway that gradually builds learner autonomy while strategically deploying AI tools. The model recognizes that effective AI integration is not about maximizing AI use but about optimizing the relationship between human and artificial intelligence in the writing process. Future research should examine the model's effectiveness across diverse educational contexts, investigate long-term retention and transfer of AI-integrated writing skills, explore disciplinary differences in optimal pedagogical approaches, and develop validated instruments for assessing AI literacy as a component of writing competence. The goal of writing pedagogy in the AI era should not be to resist technology or to surrender to it, but to educate students who can use AI as one tool among many in their writer's repertoire—always critically, always strategically, and always with awareness of their own agency and responsibility as writers.

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