

RECONCEPTUALIZING TEACHER COMPETENCIES IN THE ERA OF ARTIFICIAL INTELLIGENCE

Zamira Istam Kizi Akramova¹, Madjidov Shakhrukh Akhliddinovich²

¹*Changwai Bilingual World IB School, Changzhou, P.R.China.*

²*Suzhou University of Technology, Suzhou, P.R.China.*

Abstract: Artificial Intelligence (AI) is reshaping education at an unprecedented pace, demanding a critical re-examination of teacher competencies. While existing frameworks emphasize technological literacy, this paper argues that such approaches remain insufficient without integrating ethical reasoning, inquiry-based pedagogy, and human-centered values. Drawing on the UNESCO AI Competency Framework for Teachers (2023) [7], comparative analyses of AI competence models (Mikeladze, 2024) [6], and emerging research in AI and education (Holmes et al., 2022) [5], this study also incorporates recent global evidence on AI use in English language teaching (ELT). Empirical findings indicate widespread adoption of AI tools among educators, alongside significant gaps in training and ethical preparedness.

Situated within the International Baccalaureate (IB) Primary Years Programme (PYP), this paper proposes a model of AI integration that strengthens Approaches to Learning (ATL), student agency, and international-mindedness. It concludes that effective AI integration depends not on technological adoption alone, but on educators' ability to critically, ethically, and reflectively mediate its role in learning.

Annotatsiya: Sun'iy intellekt (AI) ta'limni misli ko'rilmagan tezlikda o'zgartirmoqda va o'qituvchi kompetensiyalarini tanqidiy qayta ko'rib chiqishni talab qilmoqda. Mavjud yondashuvlar asosan texnologik savodxonlikka urg'u berayotgan bo'lsa-da, ushbu maqola bunday yondashuvlar axloqiy fikrlash, tadqiqotga asoslangan pedagogika va inson markazli qadriyatlar bilan integratsiyalashmaguncha yetarli emasligini ta'kidlaydi. UNESCO o'qituvchilar uchun AI kompetensiyalari doirasiga (2023) [7], AI kompetensiya modellarining qiyosiy tahliliga (Mikeladze, 2024) [6] va AI hamda ta'lim sohasidagi zamonaviy tadqiqotlarga (Holmes va boshq., 2022) [5] tayangan holda, ushbu tadqiqot ingliz tilini o'qitishda (ELT) AI'dan foydalanish bo'yicha so'nggi global dalillarni ham o'z ichiga oladi. Empirik natijalar o'qituvchilar orasida AI vositalaridan keng foydalanilayotganini, shu bilan birga tayyorgarlik va axloqiy tayyorgarlik darajasida sezilarli bo'shliqlar mavjudligini ko'rsatadi.

Xalqaro bakalavriat (IB) Boshlang'ich yillar dasturi (PYP) kontekstida ushbu maqola AI integratsiyasining o'quv yondashuvlarini (ATL), o'quvchi agentligini va xalqaro fikrlashni mustahkamlovchi modelini taklif etadi. Xulosa shuni ko'rsatadiki, AI'ni samarali integratsiya qilish faqat texnologik joriy etishga emas, balki o'qituvchilarning uning ta'limdagi rolini tanqidiy, axloqiy va refleksiv tarzda vositachilik qilish qobiliyatiga bog'liq.

Аннотация: Искусственный интеллект (AI) трансформирует образование с беспрецедентной скоростью, требуя критического переосмысления компетенций учителя. Хотя существующие подходы подчеркивают технологическую грамотность, в данной статье утверждается, что такие подходы остаются недостаточными без интеграции этического мышления, исследовательской педагогики и человеко-ориентированных ценностей. Опираясь на Рамочную модель компетенций AI для учителей ЮНЕСКО (2023) [7], сравнительный анализ моделей AI-компетентности (Mikeladze, 2024) [6] и современные исследования в области AI и образования (Holmes и др., 2022) [5], данное исследование также включает последние глобальные данные об использовании AI в преподавании английского языка (ELT). Эмпирические результаты свидетельствуют о широком распространении использования AI-инструментов среди педагогов, наряду с существенными пробелами в подготовке и этической готовности.

Рассматривая контекст Программы начальной школы Международного бакалавриата (IB PYP), в статье предлагается модель интеграции AI, усиливающая подходы к обучению (ATL), агентность учащихся и международное мышление. Делается вывод о том, что эффективная интеграция AI зависит не только от внедрения технологий, но и от способности педагогов критически, этически и рефлексивно опосредовать его роль в обучении.

Keywords: Artificial Intelligence in Education (AIEd), Teacher AI Competence, Critical AI Literacy, Ethical and Responsible AI, Inquiry-Oriented Pedagogy, Technology-Enhanced Learning (TEL), Algorithmic Bias in Education, Human-Centered Education.

Kalit so'zlar: Ta'limda sun'iy intellekt (AIEd), O'qituvchilarning AI kompetensiyasi, Tanqidiy AI savodxonligi, Axloqiy va mas'uliyatli AI, Tadqiqotga yo'naltirilgan pedagogika, Texnologiya bilan boyitilgan ta'lim (TEL), Ta'limda algoritmik og'ish (bias), Inson markazli ta'lim.

Ключевые слова: Искусственный интеллект в образовании (AIEd), Компетентность учителя в области AI, Критическая AI-грамотность, Этичный и ответственный AI, Исследовательская педагогика, Обучение с использованием технологий (TEL), Алгоритмическая предвзятость в образовании, Человеко-ориентированное образование.

Introduction

The rapid integration of Artificial Intelligence (AI) into education has generated both enthusiasm and concern. On one hand, AI promises personalization, efficiency, and expanded access to knowledge. On the other, it raises fundamental questions about pedagogy, equity, and the evolving role of the teacher.

Recent global research highlights that AI adoption is already widespread among educators. For example, a large-scale international survey found that approximately 76% of teachers report using AI tools in their practice, yet only around 20% feel adequately trained to do so effectively. This disparity underscores a critical tension: technological adoption is advancing faster than pedagogical readiness. Much of the current discourse frames AI as a tool to enhance measurable learning outcomes. However, this instrumental perspective risks reducing education to efficiency metrics, neglecting broader aims such as fostering critical thinking, ethical awareness, and intercultural understanding. As UNESCO (2023) emphasizes [7], AI competence must extend beyond technical skills to include ethical and pedagogical judgment.

Regulatory framework and Uzbekistan strategy for AI development: A key stage in the institutionalization of artificial intelligence policy was the adoption of the "Strategy for the Development of Artificial Intelligence Technologies until 2030," which provides for the creation of conditions for the accelerated implementation and widespread use of AI, as well as the formation of a comprehensive regulatory framework [1]. The strategy defines the goals, objectives, and priority areas for AI development, taking into account the current level of digitalization and best international practices. As part of its implementation, 86 projects have been formed in the republic, covering such areas as healthcare, education, energy, transport, ecology, and finance. A supercomputer cluster is being created to support the computing needs of AI implementation, and in the area of public administration, results have already been achieved in optimizing management processes and personnel numbers.

This paper therefore shifts the focus from how teachers use AI to how AI reshapes what it means to teach, positioning educators as critical mediators rather than passive users of technology.

The UNESCO AI Competency Framework for Teachers (2023) provides a structured foundation, identifying domains such as understanding AI, pedagogical application, and ethical awareness [7]. However, emerging research suggests that these competencies cannot be treated as static or linear. Recent evidence from global ELT contexts indicates that AI competence is unevenly distributed and often underdeveloped in practice. While teachers frequently use AI for tasks such as lesson planning, material creation, and language practice, deeper pedagogical integration remains

limited. This suggests that current frameworks may overestimate the extent to which competencies translate into classroom practice [4].

Furthermore, AI systems are inherently shaped by data, design, and socio-political contexts. As highlighted in recent studies, AI tools may reinforce standardized language norms and marginalize linguistic diversity, particularly in global English contexts. This reinforces the need for critical AI literacy, enabling teachers to interrogate bias, representation, and epistemological assumptions embedded in AI outputs [2-3].

Thus, AI competence should be reconceptualized as a dynamic, reflective, and context-dependent practice, rather than a fixed set of skills.

Problem statement

One of the most significant challenges in AI integration is the tension between efficiency and meaningful learning. AI tools enable rapid content generation, automated feedback, and personalized learning pathways. However, these affordances may reduce opportunities for cognitive struggle and deep inquiry. Research in AI-supported language learning demonstrates both benefits and limitations. AI systems can enhance pronunciation, writing accuracy, and vocabulary acquisition through adaptive feedback mechanisms. At the same time, many AI tools replicate traditional pedagogical models-such as direct instruction and passive content delivery-rather than transforming learning processes.

This raises a critical concern: if AI accelerates answers without fostering inquiry, it may inadvertently weaken higher-order thinking skills. To address this, educators must intentionally design learning experiences where AI supports: critical evaluation of information; comparative analysis of multiple perspectives; reflection on knowledge construction. In this way, AI becomes not a shortcut, but a cognitive amplifier.

Ethical considerations are central to AI integration in education. Key concerns include data privacy, algorithmic bias, academic integrity, and the growing influence of large technology companies. Recent findings highlight that AI systems can reproduce biases present in training data and may promote dominant linguistic or cultural norms. In language education, this may lead to the marginalization of non-standard varieties of English, raising important questions about inclusivity and representation.

Equity is another critical issue. Unequal access to AI technologies risks widening existing educational divides. While AI can enhance accessibility-for example, through speech-based interfaces for learners with disabilities-it may also privilege well-resourced institutions and learners.

Additionally, emerging concerns such as cognitive overload, academic misconduct, and datafication of learning highlight the need for robust ethical frameworks and policy

guidance. Therefore, ethical AI integration requires: transparent data practices; inclusive design and tool selection; critical engagement with bias; institutional policies supporting equitable access.

Method of solution

As AI continues to evolve, the role of the teacher becomes increasingly complex and indispensable. Evidence suggests that AI is unlikely to replace teachers; rather, it redefines their professional identity.

While many educators express uncertainty about the long-term impact of AI, the prevailing view is that human teachers remain essential for guidance, motivation, and ethical mediation. In this context, teachers must function as: designers of inquiry-based learning environments; facilitators of critical thinking; ethical interpreters of technology; reflective practitioners adapting to ongoing change.

Teacher education programs must therefore move beyond tool-based training and focus on adaptive expertise, enabling educators to respond to evolving technological and pedagogical landscapes.

Conclusion

Artificial Intelligence holds transformative potential for education, but its impact depends fundamentally on how it is integrated into pedagogical practice. This paper has argued that effective AI integration requires not only technical competence but also ethical awareness, critical literacy, and a commitment to human-centered learning.

Empirical evidence demonstrates that while AI adoption is widespread, significant gaps remain in teacher preparedness, ethical understanding, and equitable implementation. Addressing these gaps is essential to ensuring that AI enhances rather than diminishes educational quality.

Ultimately, the future of education lies not in replacing teachers with technology, but in empowering educators to engage with AI critically, creatively, and responsibly. The central challenge is not technological advancement itself, but preserving the human purpose of education in an increasingly automated world.

References:

- [1] Постановление Президента Республики Узбекистан об утверждении стратегии развития технологий искусственного интеллекта до 2030 года, 2024 год, 4 октября, номер ПП-357.
- [2] Alqaryouti, M., Sadeq, A. E., & M. H. (2023). Using chatbots for English language learning in higher education. *Computers & Higher Education: Artificial Intelligence*, 5, 100153.
<https://doi.org/10.1016/j.caeai.2023.100153>
- [3] Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, 20, 22.
<https://doi.org/10.1186/s41239-023-00392-8>

- [4] Edmett, A., Ichaporia, N., Crompton, H., & Crichton, R. (2024). *Artificial intelligence and English language teaching: Preparing for the future*. British Council.
- [5] Holmes, W., Bialik, M., & Fadel, C. (2022). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- [6] Mikeladze, T. (2024). *A comprehensive exploration of artificial intelligence competence frameworks for educators*.
- [7] UNESCO. (2023). *AI competency framework for teachers*. UNESCO.