ARTIFICIAL INTELLIGENCE AS A MEANS OF DEVELOPING PEDAGOGICAL CREATIVITY IN HIGHER EDUCATION TEACHERS IN UZBEKISTAN

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Abstract

This article examines the potential of artificial intelligence (AI) to develop the pedagogical creativity of university teachers in Uzbekistan. Against the background of the country's Strategy for the Development of Artificial Intelligence Technologies until 2030, it considers how AI can support lesson design, the creation of learning materials, differentiated instruction, interdisciplinary projects, and professional reflection. The article proposes a structural-functional model comprising motivational-value, cognitive-digital, creative-activity, and reflective-evaluative components. It argues that AI contributes to pedagogical creativity only when teachers critically evaluate and adapt generated outputs rather than use them mechanically. Academic integrity, data protection, reliability, and the teacher's leading role are identified as essential conditions for responsible implementation.

Keywords: artificial intelligence, generative AI, pedagogical creativity, higher education, university teachers, digital competence, Uzbekistan.

1. Introduction and Research Aim

Higher education is undergoing rapid digital transformation, changing curricula, teaching methods, teacher–student interaction, and professional competency requirements. Artificial intelligence can process large amounts of information, generate text and images, support educational-content design, and assist with the analysis of learning data. In Uzbekistan, this development is particularly relevant in view of the national Strategy for the Development of Artificial Intelligence Technologies until 2030, approved by Presidential Resolution No. PP-358 of 14 October 2024 [1].

Recent national initiatives also indicate growing attention to AI competence in higher education. In 2026, professional-development activities for university teachers addressed AI literacy and the preparation of teaching materials; cooperation between Uzbek institutions and the Korea International Cooperation Agency (KOICA) also envisaged capacity-building and an AI Professor Platform [2, 3]. These developments make responsible AI use a practical concern rather than merely a future prospect.

Technology alone, however, does not guarantee better education. The teacher remains responsible for learning objectives, content, interaction, and assessment. The research aim is therefore to substantiate the potential of AI as a means of developing teachers' pedagogical creativity and to propose a model for its purposeful use. Pedagogical creativity is understood as the ability to design original, effective, and context-appropriate ways to address educational tasks.

2. Methodology

The study is theoretical and uses systems, competency-based, activity-oriented, learner-centred, and digital approaches. The methods include analysis of scholarly literature and policy documents, comparison, synthesis, systematisation, and modelling. The UNESCO AI Competency Framework for Teachers provides a relevant international reference: it identifies competencies across human-centred thinking, AI ethics, AI foundations and applications, AI pedagogy, and AI for professional learning, with

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progression from acquisition to deepening and creation [4]. This framework supports the view that advanced competence involves creating new pedagogical solutions, not simply operating digital tools.

3. AI in Teachers' Creative Practice

AI changes the traditional teacher–student relationship into a more complex interaction involving the teacher, AI, and student [4, 5]. Its main functions are instrumental: searching for and organising information; generating alternative lesson plans and learning materials; drafting questions, tests, cases, and problem-based tasks; adapting resources to different levels of student preparation; supporting language editing; suggesting project ideas; and helping teachers reflect on their practice.

The creative contribution lies not in accepting an AI-generated output as finished work, but in selecting, checking, contextualising, and improving it. For example, an AI system may generate several problem-based tasks. The teacher must assess their accuracy and relevance, select an appropriate option, adapt it to the needs of a particular group, and connect it to the intended learning outcomes. Used in this way, AI broadens the range of options available for professional decision-making.

Five areas are especially promising. First, AI can support lesson design by proposing alternative structures and explanations. Second, it can help develop open-ended questions, cases, and creative assignments. Third, it can facilitate differentiated learning through tasks of varying complexity. Fourth, it can help identify links across disciplines and support interdisciplinary projects. Fifth, it can contribute to professional reflection by suggesting alternative explanations or areas for improving a lesson. These uses can support the stages of creative work from initial idea generation to design, classroom testing, and subsequent revision.

4. Proposed Structural-Functional Model

The proposed model includes four connected components:

1. Motivational-value component. This reflects teachers' willingness to explore AI as a means of professional development, experiment with new approaches, improve teaching, continue learning, and use technology responsibly.

2. Cognitive-digital component. Teachers need to understand the capabilities and limitations of generative AI, including the risk of fabricated information, copyright considerations, personal-data protection, academic integrity, and ethical use.

3. Creative-activity component. This is the central component. It involves designing original assignments and learning scenarios, creating problem-based and interdisciplinary tasks, adapting generated material to a specific educational context, and developing innovative teaching formats.

4. Reflective-evaluative component. Teachers critically examine AI outputs, identify errors, evaluate the educational value of materials, consider students' responses, revise teaching decisions, and assess their own digital and pedagogical competencies.

The model can be summarised as a cycle: motivation → AI knowledge → creative application → pedagogical testing → reflection → improvement → a new educational product. Because the cycle is iterative, reflection informs subsequent design and supports continued professional growth.

5. Conditions for Effective and Responsible Use

Several conditions are necessary for AI to strengthen, rather than weaken, pedagogical creativity. First, teachers need structured AI training that combines basic concepts with practical work on lessons, cases, projects, and digital resources. Second, teacher agency must be preserved: AI provides support, while the educator remains accountable for pedagogical decisions. Third, professional development should encourage experimentation and discussion of classroom outcomes, rather than focus only on tool operation.

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Fourth, teachers must verify generated information, sources, and the pedagogical suitability of materials. Generative systems can produce fluent but inaccurate claims, so their outputs should not be treated as inherently reliable. Fifth, institutions should establish clear expectations for academic integrity, disclosure of AI use where required, and the handling of personal or confidential information. UNESCO's guidance emphasises human-centred, safe, ethical, and responsible use of generative AI in education and research [6].

6. Relevance to Higher Education in Uzbekistan

AI-related infrastructure and professional development are increasingly visible in Uzbekistan's higher-education sector. Initiatives reported in 2026 included the establishment of an AI laboratory at Namangan State Technical University, discussion of AI-era workforce preparation at an Uzbek–Hungarian rectors' forum in Samarkand, and an international study visit focused on AI and innovative education [7–9]. Together with national AI strategy and teacher-training initiatives, these developments underline the importance of building educators' practical and ethical AI competence.

For universities, the priority should be to connect technological adoption with teaching quality. Institutional support may include practice-oriented professional-development courses, access to appropriate digital tools, guidance on privacy and academic integrity, and opportunities for teachers to share tested approaches. The effectiveness of such initiatives should be judged not by the frequency of AI use, but by whether it improves the relevance, variety, inclusiveness, and educational value of learning activities.

7. Risks and Limitations

The use of AI also involves risks. Dependence on ready-made outputs may reduce teachers' independent design skills. Inaccurate or fabricated information can enter learning materials unless outputs are checked. Unclear rules may create academic-integrity problems, while careless use can expose personal or confidential data. Excessive technologisation may also weaken the human dimension of education, which includes communication, emotional support, value formation, and personal development.

These risks do not require rejecting AI; they require thoughtful boundaries. Teachers should retain control over learning objectives, content selection, assessment, and the final approval of materials. AI should augment professional judgement rather than replace it, and its use should be consistent with institutional policies and applicable ethical and legal requirements.

8. Conclusion

AI has significant potential to support pedagogical creativity in Uzbekistan's higher-education institutions. It can expand teachers' design options, support the creation of learning materials and problem-based tasks, facilitate differentiated instruction and interdisciplinary projects, and strengthen professional reflection. Nevertheless, using AI is not, by itself, evidence of creativity. Creativity depends on the teacher's ability to evaluate outputs critically, adapt them to real educational needs, and develop independent pedagogical solutions.

The proposed model integrates motivational-value, cognitive-digital, creative-activity, and reflective-evaluative components. Its implementation requires AI competence, practice-oriented training, critical verification, protection of data, academic integrity, and preservation of teacher agency. The most productive direction for Uzbekistan's higher education is therefore not to replace teachers with AI, but to establish a responsible partnership in which AI broadens professional possibilities while teachers remain the leading actors in the educational process.

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