



Applying artificial intelligence to innovate university teaching methods in Vietnam

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Abstract

The rapid development of generative artificial intelligence (GenAI) is creating significant changes in university teaching. This study analyzes the opportunities, challenges, and limitations of AI for teaching, focusing on faculty AI capabilities, innovative teaching methods, assessment, scientific integrity, information reliability, data security, and university governance. The paper proposes four pillars: faculty AI capabilities, AI-integrated teaching methods, AI-integrated assessment, and AI governance in educational institutions.

Keywords: Artificial intelligence generation, higher education, lecturers, teaching innovation, AI literacy, AI governance

Introduction

Artificial intelligence, generated with tools like ChatGPT, Gemini, and Copilot, has transformed how instructors design lectures, build learning materials, organize learning activities, and support students ^[1]. AI not only automates some academic tasks but also supports the personalization of training content, improves feedback, and enhances interaction between instructors and learners ^[2]. However, the application of AI also raises issues related to instructors' digital competence, information reliability, scientific integrity, data security, and the risk of technological dependence ^[3]. Therefore, the question arises: how, to what extent, and with what responsibilities should AI be used in university teaching? This article focuses on clarifying three aspects: (i) an overview of the theoretical application of AI to innovate university teaching methods based on a comparison with Vietnamese legal policies; (ii) an analysis of the opportunities, challenges, and limitations of AI for instructors and learners; (iii) specifying four criteria for AI governance in teaching to ensure effective application in educational institutions.

The current state of applying artificial intelligence to innovate university teaching methods in Vietnam

1. Overview of the application of artificial intelligence to innovate university teaching methods in Vietnam

The Technology Acceptance Model (TAM) posits that perceived usefulness and perceived ease of use are two crucial factors influencing the intention to use technology ^[4]. When instructors perceive that AI saves time in lesson planning and improves teaching quality, the tendency to accept the technology will be more positive. Furthermore, the Diffusion of Innovations (DOI) theory views the spread and acceptance of AI in educational environments as depending on relative advantage, compatibility, complexity, experimentability, and the ability to observe results ^[5]. In a university setting, the diffusion of AI is also linked to instructors' digital capabilities, the university's support policies, and its technological infrastructure. Therefore, the presence of AI in higher education institutions and its effective use in education are two independent issues:

technology acceptance is a prerequisite, whereas educational value depends on how AI is organized.

The use of AI in higher education institutions can create an additional cost burden for institutions with limited technological and financial resources. Surveys by Vietnamese experts show that the use of AI applications in higher education often lacks guidance, raising concerns about violations of scientific integrity. Furthermore, there are limitations in technological and pedagogical skills, disparities in awareness, and differences in the frequency of AI use between faculty and students ^[6]. Therefore, if AI governance is overly rigid or lacks a roadmap tailored to the specific capabilities of each higher education institution, faculty members may avoid using AI for fear of violating scientific integrity.

On June 30, 2026, the Vietnamese Ministry of Education and Training issued Circular No. 49/2026/TT-BGDĐT regulating the application of technology in higher education and vocational education, specifically regarding the application of AI, big data, cloud computing, and new technologies in training, testing, evaluation, scientific research, management, and educational service provision. This circular sets out several principles: AI should only be considered a supporting tool, not a replacement for the role of lecturers; the application of AI in training and evaluation must ensure transparency, accountability, and not distort learning outcomes; higher education institutions must issue internal regulations and codes of conduct on the use of AI, while ensuring the verification of student identity, control of the evaluation process, and traceable data storage. The circular also stipulates violations of academic integrity in the digital environment related to AI, including using AI to cheat, plagiarize, or falsify data, or failing to disclose its use when required. The Vietnamese Ministry of Education and Training also announced a strategic direction for integrating AI into university training programs, with a roadmap tailored to each educational level, while organizing training programs for lecturers and education administrators. The AI capabilities of lecturers are identified as a decisive factor in the success of AI applications in education.

In practical terms, surveys at several Vietnamese higher education institutions show that the application of AI is still

in its initial stages: most schools have not yet issued specific policies on the use of AI in training, leading to concerns about academic integrity and differences in approach among lecturers; the main barriers noted are a lack of guidance, concerns about ethical use, limited technological and pedagogical skills, and disparities in awareness and frequency of AI use among relevant groups ^[7].

2. Opportunities, challenges, and limitations of AI for university teaching

The first value of AI for teaching is enhancing faculty productivity by supporting the development of learning materials, questions, and scenarios, allowing instructors to focus more on organizing the learning process ^[8]. The second value is increasing the ability to personalize learning, supporting the creation of learning paths tailored to each student's level and needs ^[9]. The third value is promoting innovation in teaching methods, shifting from a one-way knowledge-transmission model to an active-learning model ^[10]. The fourth value is developing students' AI and digital skills – the ability to interact with intelligent systems, evaluate information quality, and take responsibility for the final product ^[11].

In addition, AI has implications for teaching. Four main challenges arise. First, faculty AI capabilities are uneven; without adequate training, instructors may completely ban AI or use unverified AI. Second, the line between academic support and academic fraud blurs as AI gains the ability to write essays, complete assignments, and summarize material. Third, AI-generated content can create false information, non-existent documents, or fake citations, while students may be confused by fluent text and mistaken for credible content. ^[12] Fourth, uploading personal data, assignments, or internal documents to commercial AI platforms creates data security and privacy risks.

Therefore, AI can contribute to improving teaching effectiveness when the ability to use technology is combined with pedagogical skills and appropriate control mechanisms. If AI is used solely to replace technical operations without verification, the technology may create additional risks rather than improve the quality of education.

Conclusion

Artificial intelligence is creating significant changes in higher education, offering opportunities to improve faculty performance, innovate teaching methods, and develop students' digital skills ^[13]. However, AI does not automatically create quality education: issues concerning AI capabilities, information reliability, academic integrity, data security, and infrastructure demonstrate that the use of AI needs to be placed within a clear organizational and accountability framework ^[14], especially in the context of Vietnam having recently issued its first legal framework on this issue through Circular 49/2026/TT-BGDĐT.

This article proposes shifting the focus from “AI applications” to “AI governance in teaching,” built on four pillars with specific operational criteria: developing AI capabilities of instructors at three levels; integrating AI into supervised teaching methods; redesigning assessment based on AI usage levels; and institutionalizing AI governance at the educational institution level in accordance with current regulations.

Regarding policy recommendations, for lecturers, the focus should be on developing the capacity to use, evaluate, and

verify AI according to a tiered roadmap tailored to individual capabilities and educational institutions. For educational institutions, it is necessary to urgently issue internal regulations and a code of conduct on AI in accordance with the requirements of Circular 49/2026/TT-BGDĐT, invest in infrastructure, and organize training with evaluated effectiveness. For teaching activities, there needs to be a shift from a knowledge-transmission mindset to designing activities in which AI supports, but does not replace, learners' thinking.

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