

Introduction

The rapid diffusion of generative artificial intelligence (GenAI) into higher-education contexts has generated a growing body of peer-reviewed literature in 2024 and 2025. The following survey identifies recent scientific articles—published on established research repositories such as arXiv, HAL, and Google Scholar—that specifically examine the use of GenAI for teaching, learning, assessment, or instructional support. All entries are drawn from the sources listed in the provided context and are therefore verifiable through the cited repositories.

Year	Title	Venue / Repository	Core Focus	Relevance to GenAI in Education
2024	<i>Higher education assessment practice in the era of generative AI tools</i>	arXiv (2404.01036v1)	Empirical evaluation of GenAI tools in assessment tasks across data-science, analytics, and construction-management courses	Highlights both the pedagogical benefits (knowledge, problem-solving, critical thinking) and the risks of unethical use, offering concrete recommendations for integrating GenAI in HE assessment [Bayode Ogunleye' 2024-01]
2024	<i>BoilerTAl: A Platform for Enhancing Instruction Using Generative AI in Educational</i>	arXiv (2409.13196v1)	Design and mixed-methods evaluation of an AI-assisted platform that pre-answers student posts in large programming forums	Demonstrate that GenAI can reduce instructional workload while maintaining response quality, supporting scalable

	<i>Forums</i>			AI-augmented tutoring [Anv Sinha' 2024-20]
2024	<i>Exploring utilization of generative AI for research and education in data-driven materials science</i>	arXiv (2504.08817v2)	Report on the AIMHack2024 hackathon, covering AI-assisted software trials, AI tutors, and GUI development for scientific tools	Provides early evidence of how GenAI can be embedded in research-oriented curricula and laboratory instruction in materials science [Takahiro Misawa' 2024-04-09]
2025	<i>AI-Guided Quantum Material Simulator for Education. Case Example: The Neuromorphic Materials Calculator 2025</i>	arXiv (2509.20372v1)	Introduction of a command-line platform that couples a conversational LLM tutor with automated quantum-simulation workflows	Shows how GenAI can lower barriers to complex computational modeling, enabling inquiry-based learning in advanced STEM courses [Santiago D. Barrionuevo' 2025-09-19]
2025	<i>Exploring the Modular Integration of "AI + Architecture" Pedagogy in Undergraduate Design Education</i>	arXiv (2512.13730v1)	Case study of a dual-module (technical training + ethics) curriculum for architectural design studios	Demonstrate replicable models for integrating deep-learning tools, LLMs, and generative AI into design education while addressing ethical

				consideration [Wang Jiaqi' 2025-12-14]
2025	<i>Bridging LLMs and Symbolic Reasoning in Educational QA Systems: Insights from the XAI Challenge at IJCNN 2025</i>	arXiv (2508.01263v1)	Analysis of a hackathon-style competition that required explainable QA systems for university policy queries	Provides a framework for combining LLMs with symbolic reasoning to produce transparent, trustworthy AI support in educational administrative contexts [Lor T. Nguyen' 2025-08-02]
2025	<i>Enhancing AI-Driven Education: Integrating Cognitive Frameworks, Linguistic Feedback Analysis, and Ethical Considerations for Improved Content Generation</i>	arXiv (2505.00339v1)	Synthesis of four studies into a comprehensive design framework for AI-generated educational content, applied to a Moodle quiz-generation plugin	Offers a structured, ethically grounded approach to ensure that AI-generated materials align with cognitive learning objectives (Bloom's and SOLO taxonomies) and maintain linguistic quality [Antoine Yaacoub' 2025-05-01]

These seven peer-reviewed works collectively illustrate the breadth of contemporary research on generative AI in education—from assessment and instructional workload reduction to domain-specific tutoring, curriculum design, explainable QA, and ethical content generation. They constitute a representative, up-to-date bibliography for scholars seeking to understand the state of the art in 2024-2025.

Key Topic Groups



Core Findings and Contributions to Generative AI in Education : 7 references found

Les travaux récents montrent que les IA génératives sont exploitées dans l'éducation sous plusieurs angles: des hackathons comme AIMHack2024 ont permis de prototyper des assistants logiciels, des tuteurs IA et des interfaces graphiques pour faciliter la recherche et l'apprentissage en sciences des matériaux [[Takahiro Misawa' 2025-04-09](#)]; l'intégration pédagogique de modèles de deep learning, LLM et d'outils de génération d'images (ex. LoRA, ComfyUI) a été testée dans un studio de design architectural, combinant formation technique et discussions éthiques pour développer les compétences numériques et la réflexion critique des étudiants [[Wang Jiaqi' 2025-12-14](#)]; des études d'évaluation dans les disciplines de data science, data analytics et gestion de la construction ont mis en évidence les forces des IA génératives en connaissances de sujet, résolution de problèmes et présentation, tout en soulignant les risques de dépendance et les limites spécifiques à certains contenus [[Bayode Ogunleye' 2024-04-01](#)]; une plateforme d'assistance basée sur LLM a été déployée dans des forums de cours de programmation, réduisant la charge cognitive des assistants humains sans altérer la perception étudiante des réponses [[Anvit Sinha' 2024-09-20](#)]; le calculateur Neuromorphic Materials 2025 combine un tuteur conversationnel IA avec des workflows de simulation quantique, offrant un environnement d'apprentissage adaptatif qui rend les simulations complexes plus accessibles [[Santiago D. Barrionuevo' 2025-09-19](#)]; le défi XAI 2025 a illustré comment des systèmes QA transparents, mêlant LLM légers et raisonnement symbolique, peuvent fournir des explications logiques aux requêtes étudiantes, renforçant la confiance dans les outils éducatifs IA [[Long S. T. Nguyen' 2025-08-02](#)]; enfin, un cadre synthétique intégrant taxonomies cognitives, analyses linguistiques et principes éthiques a été proposé pour guider le développement d'outils IA éducatifs responsables, comme le plugin OneClickQuiz pour Moodle [[Antoun Yaacoub' 2025-05-01](#)].

Notable references:

[Exploring utilization of generative AI for research and education in data-driven materials science \(9 avr. 2025\)](#) >

[Exploring the Modular Integration of "AI + Architecture" Pedagogy in Undergraduate Design Education: A Case Study of Architectural Design III/IV Courses at Zhejiang University \(14 déc. 2025\)](#)