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The Evolving Landscape of AI in Education: A Systematic Review of Contemporary Research (2024-2025)

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Abstract

Artificial Intelligence (AI) is increasingly reshaping educational systems worldwide, influencing pedagogy, assessment, governance, and learner engagement. While the volume of AI-in-education research has expanded rapidly, particularly following the emergence of generative AI, there remains a need for up-to-date synthesis focused on the most recent phase of adoption. This study presents a systematic review of peer-reviewed research on AI in education published between 2024 and 2025, conducted in accordance with the PRISMA 2020 guidelines. A comprehensive search of Scopus, Web of Science, IEEE Xplore, and the ACM Digital Library yielded 37 eligible studies. Using a narrative synthesis approach, the review examines publication trends, research methods, thematic focus areas, and educational contexts.

The findings reveal a field dominated by meta-research, including bibliometric analyses, conceptual papers, and systematic reviews, with limited primary empirical evidence assessing real-world educational outcomes. Major thematic areas include personalized and self-regulated learning, generative AI and assessment, AI literacy, ethical and equity concerns, and institutional governance. Higher education and professional training contexts are disproportionately represented, while school-level education receives comparatively limited attention. The review highlights a growing research–practice gap, as technological adoption outpaces empirical validation and policy development.

Overall, the study provides a timely synthesis of contemporary AI-in-education research, identifying critical evidence gaps and governance challenges. It underscores the need for empirically grounded, ethically informed, and context-sensitive approaches to AI integration that move beyond conceptual promise toward sustainable and equitable educational practice.

Keywords: Artificial intelligence; Generative AI; Systematic review; Academic integrity; Higher education

Introduction

Artificial Intelligence (AI) has rapidly emerged as a transformative force in education, reshaping pedagogical practices, assessment models, and learning experiences across educational levels. Recent advances in machine learning, natural language processing, and generative AI systems have accelerated the adoption of AI-enabled tools in teaching, learning, and academic administration, particularly within higher education. These developments have created new opportunities for personalization, learner autonomy, and data-informed instruction, while simultaneously raising critical concerns related to ethics, equity, academic integrity, and educational governance.

One of the most frequently cited benefits of AI in education is its capacity to support personalized and self-regulated learning. AI-driven systems can adapt instructional content to individual learner profiles, offering differentiated feedback and pacing that align with students' strengths, needs, and learning trajectories (Efrizal, 2024; Yun et al., 2024). Empirical and review-based studies suggest that such personalization is associated with improvements in academic performance, learner motivation, and student well-being, particularly in language learning and higher education contexts (Klímová & Pikhart, 2025). These developments signal a gradual shift away from standardized, one-size-fits-all pedagogical models toward more learner-centered educational approaches.

At the same time, the rapid diffusion of generative AI (GenAI) tools has introduced significant tensions within educational systems. While GenAI holds potential to enhance creativity, feedback processes, and collaborative learning, it has also intensified concerns related to plagiarism, assessment validity, and authorship transparency (Khrisat, 2025; Sánchez et al., 2025). As a result, educational institutions are increasingly challenged to rethink traditional assessment practices and to balance innovation with the preservation of academic integrity. This tension underscores a broader structural issue: technological adoption has progressed faster than the development of robust pedagogical frameworks and institutional policies to guide responsible AI use.

Another critical issue emerging from recent scholarship is the persistent gap in AI literacy and curriculum integration. Despite widespread recognition of AI's growing relevance, formal AI education remains limited across many disciplines, particularly in health professions and teacher education (Alqaissi & Qtait, 2025; Kimiafar et al., 2023). Both educators and students often report insufficient understanding of AI's capabilities, limitations, and ethical implications, constraining their ability to engage with these technologies critically and effectively. This gap raises concerns about preparedness, professional competence, and the risk of unreflective or inequitable AI adoption.

Ethical, equity, and well-being considerations further complicate the integration of AI in education. Recent studies highlight risks related to algorithmic bias, data privacy, surveillance, and the potential erosion of human-centered educational relationships, especially in disciplines requiring high levels of interpersonal interaction such as nursing and psychology (Hardie et al., 2025; Klímová et al., 2023). These concerns have prompted growing calls for ethical governance frameworks that ensure AI augments rather than replaces human judgment, while promoting inclusion and safeguarding student welfare.

Despite the expanding body of literature on AI in education, existing research is characterized by a strong dominance of meta-research, including bibliometric analyses, conceptual papers, and systematic reviews, with relatively limited primary empirical evidence on real-world educational outcomes (Zawacki-Richter et al., 2019; Marengo et al., 2023). While such reflective scholarship is essential for mapping the field and establishing theoretical foundations, the imbalance highlights an emerging research–practice gap that constrains evidence-based decision-making.

Against this backdrop, this study presents a systematic review of peer-reviewed research on AI in education published between 2024 and 2025. By focusing exclusively on the most recent literature, the review provides a timely synthesis of current trends, methodological patterns, and thematic priorities in a rapidly evolving field. The study aims to (1) identify dominant research themes shaping contemporary AI-in-education scholarship, (2) examine methodological trends and evidence gaps, and (3) derive actionable implications for educators, policymakers, and researchers. In doing so, the review contributes a consolidated, up-to-date perspective that supports the transition from theoretical promise toward responsible, equitable, and empirically grounded educational practice.

Related Work

Research on Artificial Intelligence (AI) in education has expanded rapidly over the past decade, producing a substantial body of literature that examines its pedagogical, technological, ethical, and institutional implications. Much of this scholarship has taken the form of systematic reviews, bibliometric analyses, and conceptual syntheses, reflecting the field's effort to map emerging trends and establish theoretical foundations.

A dominant strand of prior research focuses on the pedagogical applications of AI, particularly its role in personalizing learning and supporting student engagement. Reviews and bibliometric studies consistently report that AI-driven systems enable adaptive learning environments that respond to individual learner profiles, improving motivation and academic outcomes (Sapci & Sapci, 2020; Prahanı et al., 2022; Almansour & Alfhaid, 2024). These studies emphasize AI's potential to enhance learner autonomy and instructional efficiency, especially in language learning and health professional education. However, much of this work synthesizes conceptual or short-term empirical findings, offering limited insight into sustained educational impact.

Another substantial body of literature examines AI literacy and professional readiness among educators and students. Systematic and scoping reviews in medical, nursing, and teacher education highlight a persistent mismatch between the perceived importance of AI and the limited formal instruction provided within curricula (Grunhut et al., 2021; Kimiafar et al., 2023; Alqaissi & Qtait, 2025). These studies argue that inadequate AI literacy constrains effective and ethical AI integration, often leaving educators underprepared to guide students' use of AI tools. While this literature identifies critical capacity gaps, it rarely connects these findings to broader governance or policy frameworks.

Ethical considerations constitute a third major strand of related work. Prior reviews emphasize concerns surrounding algorithmic bias, data privacy, surveillance, and the erosion of human-

centered educational relationships (Holmes et al., 2021; Klímová et al., 2023; Weidener & Fischer, 2024). Recent conceptual frameworks advocate for principle-based and values-driven approaches to AI governance in education, particularly in disciplines involving sensitive decision-making and interpersonal interaction. Nevertheless, much of the ethical literature remains normative, offering limited empirical evidence on how ethical frameworks are implemented or operationalized in real educational contexts.

More recently, scholarship has increasingly addressed generative AI and its implications for assessment, academic integrity, and research practices. Emerging studies document growing concerns over plagiarism, authorship ambiguity, and assessment validity, alongside recognition of GenAI's potential to support feedback, creativity, and collaborative learning (Qadhi et al., 2024; Khrisat, 2025). This literature signals a shift from policing AI use toward rethinking assessment design; however, systematic syntheses of GenAI-focused educational research remain fragmented and often embedded within broader AI reviews.

Methodologically, existing reviews reveal a strong dominance of meta-research approaches, particularly bibliometric analyses and conceptual reviews. Large-scale syntheses demonstrate that empirical studies constitute a relatively small proportion of AI-in-education research, with most reviews calling for more primary, context-sensitive investigations (Zawacki-Richter et al., 2019; Marengo et al., 2023). While these reviews provide valuable historical and structural insights, many span long timeframes and therefore lack sensitivity to the rapidly evolving post-2023 landscape shaped by generative AI and accelerated institutional adoption.

Taken together, the existing literature provides important insights into AI's educational potential, ethical challenges, and implementation barriers. However, three gaps remain evident. First, few reviews focus exclusively on very recent research, limiting their ability to capture emerging trends and shifts in emphasis. Second, the fragmentation of themes across pedagogy, ethics, and governance constrains integrated understanding. Third, the continued predominance of meta-research obscures the extent to which AI adoption has translated into empirically demonstrated educational outcomes.

This study addresses these gaps by systematically reviewing peer-reviewed AI-in-education research published between 2024 and 2025. By concentrating on the most recent literature and synthesizing thematic, methodological, and focus-area trends, the review complements existing long-term analyses while providing a timely and integrative perspective on the current state of the field.

Methods

This systematic review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines, ensuring transparency, reproducibility, and methodological rigor throughout the review process.

Studies were eligible for inclusion if they met the following criteria:

1. Focused explicitly on the application, analysis, implications, or impact of Artificial Intelligence (AI) in educational contexts, including formal education, higher education, and professional training.
2. Were published between January 2024 and December 2025, reflecting the most recent phase of AI adoption in education.
3. Appeared in peer-reviewed journals or peer-reviewed conference proceedings.
4. Were published in the English language.

Studies were excluded if they: Were not primarily education-focused (e.g., AI in industry without educational relevance); Were published outside the specified time frame, or Lacked peer review (e.g., opinion pieces, editorials, or non-reviewed reports).

Information Sources and Search Strategy

A comprehensive literature search was conducted across four major academic databases known for coverage of education, technology, and interdisciplinary research: Scopus, Web of Science, IEEE Xplore, and the ACM Digital Library. These databases were selected to ensure broad disciplinary representation, including educational research, computer science, and applied technology studies.

Search terms combined keywords related to Artificial Intelligence and Education, using Boolean operators. An example of the search string employed is as follows:

(“artificial intelligence” OR “AI” OR “generative AI”) AND (“education” OR “teaching” OR “learning” OR “higher education”), To enhance coverage, reference lists of key reviews and included studies were manually screened to identify additional relevant publications not captured in the initial database search.

The study selection process was conducted in two stages by two independent reviewers.

- In the first stage, titles and abstracts were screened for relevance against the eligibility criteria.
- In the second stage, full texts of potentially eligible studies were reviewed in detail to confirm inclusion.

Any disagreements between reviewers were resolved through discussion. When consensus could not be reached, a third reviewer was consulted. The overall selection process is summarized in the PRISMA flow diagram.

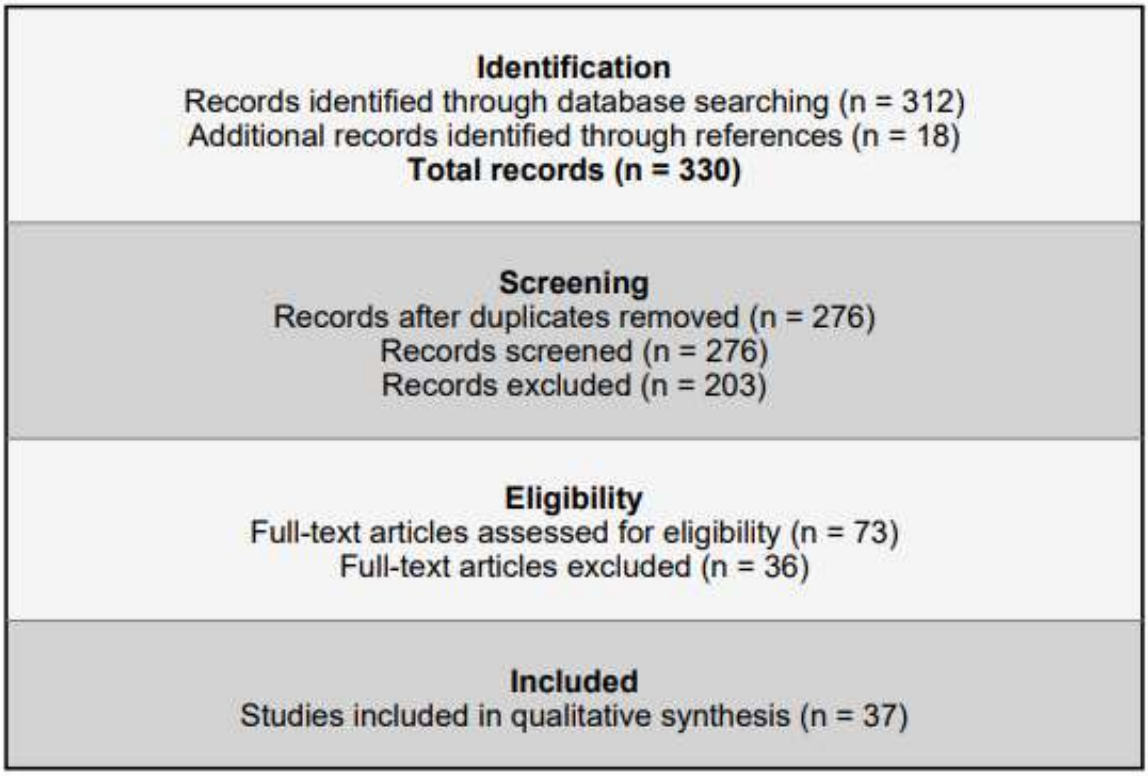
Data were extracted using a standardized extraction form developed in Microsoft Excel. To ensure accuracy and consistency, data extraction was independently performed by two reviewers and cross-checked. Extracted information included: Author(s) and year of publication, Study title, Research design and methodology, Educational context and focus area and Key findings and thematic emphasis. When study details were unclear or incomplete, attempts were made to consult the original publication for clarification.

Given the methodological heterogeneity of the included studies—spanning bibliometric analyses, conceptual papers, systematic reviews, and a limited number of empirical studies—a standardized risk-of-bias tool was not applied. Instead, a narrative quality appraisal was conducted, considering factors such as study design, methodological transparency, and analytical depth. This approach aligns with established practices for systematic reviews dominated by non-experimental research designs.

Due to substantial variation in research designs, methodologies, and outcome measures, a quantitative meta-analysis was not feasible. Accordingly, a narrative synthesis approach was adopted. Studies were grouped thematically based on their primary focus areas, methodological approaches, and conceptual contributions.

Findings were organized using descriptive tables and thematic categories to identify dominant trends, recurring patterns, contrasts, and research gaps within the 2024–2025 literature. Variations across studies were explored qualitatively; however, no formal sensitivity analysis was conducted due to the absence of comparable quantitative effect measures.

Figure 1. Diagram illustrating the study selection process for the systematic review of AI in education (2024–2025).



Results

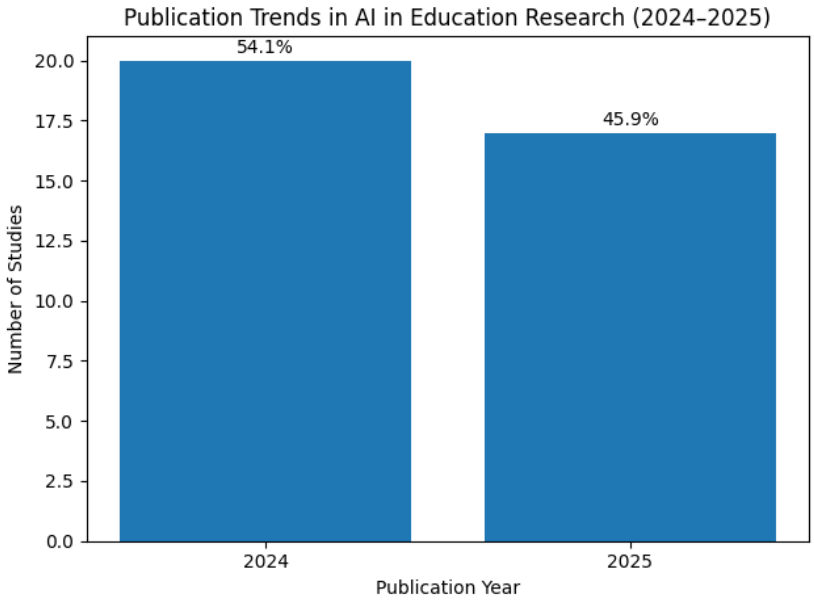
Study Selection

The systematic search and screening process resulted in the inclusion of 37 peer-reviewed studies published between 2024 and 2025 that met the eligibility criteria. The study selection process followed the PRISMA 2020 guidelines and is summarized in Figure 1. Included studies represent a range of methodological approaches and educational contexts related to Artificial Intelligence (AI) in education.

Publication Trends

Analysis of publication years indicates a relatively balanced distribution across the review period. Of the 37 included studies, 20 studies (54.1%) were published in 2024, while 17 studies (45.9%) were published in 2025. This distribution reflects sustained scholarly engagement with AI in education across the two-year period rather than a short-term surge in publications.

Figure 3. Publication trends in AI in education research (2024–2025)



Research Methods Employed

The included studies employed a diverse range of research methodologies, with a strong concentration in meta-research approaches. Bibliometric analyses accounted for 32.4% of the studies, while conceptual, narrative, and systematic reviews represented 29.7%. Together, these approaches comprised 62.1% of the reviewed literature.

Empirical studies were comparatively limited, representing only 8.1% of the included publications. These empirical studies employed case study, qualitative, or mixed-methods designs. A notable proportion of studies (29.7%) did not explicitly specify their methodological approach, particularly among conceptual and policy-oriented publications.

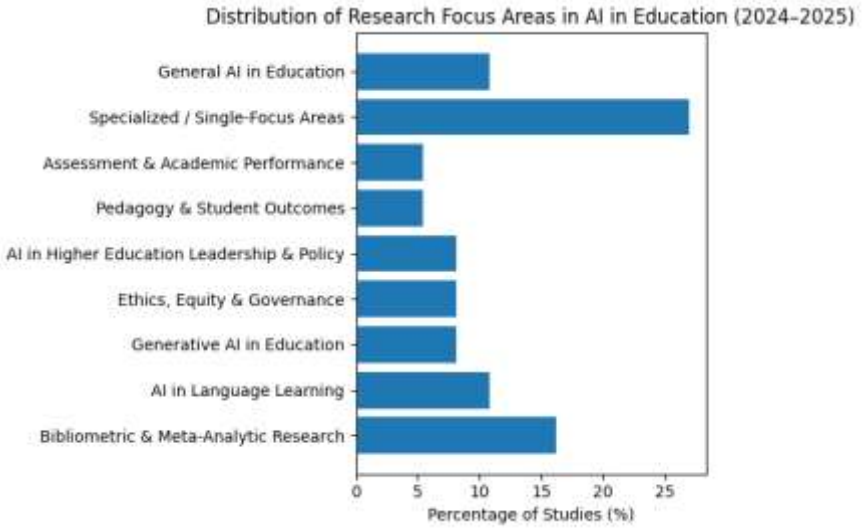
Research Focus Areas

The thematic distribution of research focus areas demonstrates the breadth of AI applications across educational domains. The most frequently represented focus area was bibliometric and meta-analytic research, accounting for 16.2% of studies. Research on AI in language learning constituted 10.8%, reflecting ongoing interest in AI-supported language instruction.

Studies addressing generative AI in education, ethics, equity, and governance, and AI in higher education leadership and policy each represented 8.1% of the sample. Research focused on pedagogy and student outcomes and assessment and academic performance each accounted for 5.4%.

The remaining studies (27.0%) addressed single-focus or specialized areas, including nursing education, psychology training, competency-based education, mental health and well-being, and educational leadership. A further 10.8% of studies addressed AI in education in general terms without specifying a distinct focus area.

Figure 2. Distribution of Research Focus Areas in AI in Education (2024–2025)



Educational Contexts

The reviewed studies spanned multiple educational contexts. Higher education was the most frequently examined setting, particularly in relation to academic integrity, assessment practices, AI literacy, and leadership. Professional education contexts—especially nursing, medical, and health sciences education—were also prominently represented. Fewer studies focused explicitly on primary or secondary education, with most school-level discussions embedded within broader conceptual or policy analyses.

Summary of Included Studies

Overall, the results indicate that recent AI-in-education research is characterized by:

A strong emphasis on mapping, synthesizing, and theorizing existing knowledge; Broad coverage across educational disciplines and institutional contexts; Limited representation of primary empirical research examining real-world educational outcomes. These patterns provide a descriptive overview of the current state of AI-in-education research during the 2024–2025 period and inform the subsequent interpretive discussion.

Table 1. Characteristics of Included Studies (2024–2025)

Author(s)	Year	Title	Study Design / Method	Educational Context	Primary Focus Area
Abbas, H.	2024	Transforming education: the role of artificial intelligence	Conceptual / Systematic Review	General Education	AI in Education
Abubakar, U., Falade, A. A., & Ibrahim, H. A.	2024	Redefining student assessment in Nigerian tertiary institutions	Empirical Study	Higher Education	Assessment & Academic Performance
Abuhassna, H., Awae, F., Adnan, M. A. B. M., Daud, M., & Almheiri, A. S. B.	2024	The information age for education via AI and machine learning	Bibliometric & Systematic Analysis	General Education	Bibliometric Analysis
Arab, R., Moosa, O., Abuadas, F., & Somerville, J.	2025	The role of AI in nursing education and practice	Umbrella Review	Nursing Education	Healthcare Education
Arsovski, D., & Kevereski, L.	2025	Ethical dilemmas and psychological impacts of AI integration	Conceptual Analysis	Special Education	Ethics & Well-being
Charles, K. A., et al.	2025	AI in action: student perceptions of generative AI use	Empirical Study	Higher Education	Generative AI
Dave, A.	2025	The ethical implications of AI in education	Conceptual Analysis	General Education	Ethics

Ganguly, A., Johri, A., Ali, A., & McDonald, N.	2025	Generative AI for academic research	Policy / Document Analysis	Higher Education	GenAI & Research Practices
Gu, W., & Yu, Z.	2024	AI chatbots in language learning contexts	Bibliometric Analysis	Language Education	AI in Language Learning
Guo, S., Zheng, Y., & Zhai, X.	2024	AI in education research (2013–2023)	Bibliometric Analysis	General Education	Bibliometric Trends
Jantakun, T., Jantakun, K., & Jantakoon, T.	2024	AI in STEM education	Bibliometric Analysis	STEM Education	AI in STEM
Karademir, T., & Altan, E.	2025	AI vs expert evaluation in engineering design pedagogy	Empirical Study	Engineering Education	Pedagogy
KESER ATEŞ, S., KALECİ, F., & ERDOĞAN, A.	2025	Artificial intelligence in education	Bibliometric Analysis	General Education	Bibliometric Analysis
Khan, N.	2025	Teacher readiness and student perception toward AI	Case Study	Higher Education	Readiness & Perception
Langeveldt, D.	2025	AI-driven leadership in educational policy	Systematic Review	Educational Leadership	Policy & Governance
Li, Y., & Rohayati	2025	AI applications in global higher education	Bibliometric Analysis	Higher Education	AI in Higher Education
Lima, L., Gomes, L., et al.	2024	Artificial intelligence and	Literature Review	General Education	Pedagogical Applications

		its use in education			
Lin, Y., & Yu, Z.	2024	AI chatbots in educational contexts	Bibliometric Analysis	General Education	AI Chatbots
Lubis, A. H., et al.	2024	AI in language learning publications	Bibliometric Mapping	Language Education	Language Learning
Ma, Y.	2025	Trustworthy AI in education	Conceptual Framework	General Education	Governance & Ethics
Malik, S., Naz, L., et al.	2025	Bridging AI and pedagogy	Empirical Study	Higher Education	Student Outcomes
Mamba, M., Naui, J., et al.	2025	AI in psychology education	Qualitative Study	Psychology Education	Ethics & Practice
Mohamad, A.	2025	AI as a tool for equity or exclusion	Conceptual Analysis	General Education	Equity & Inclusion
Moore, W., & Tsay, L.	2024	Leveraging AI for proactive education strategies	Conceptual Paper	Educational Policy	Decision Support
Ng, D. T. K., et al.	2024	AI literacy questionnaire design	Instrument Validation	Higher Education	AI Literacy
Ng, S.-L., & Ho, C.-C.	2025	Generative AI in education	Bibliometric Analysis	General Education	Generative AI
Olimid, A.	2024	Legal analysis of EU AI Act	Legal Analysis	Policy & Law	Regulation
Radu, C., et al.	2024	AI and competency-based education	Bibliometric Analysis	Higher Education	Competency-Based Education
Rahman, A., et al.	2024	AI in language learning (2017–2023)	Bibliometric & Content Analysis	Language Education	Language Learning

Saeidnia, H., et al.	2024	AI and mental health ethics	Scoping Review	Mental Health Education	Ethics & Well-being
Syobar, K.	2024	Education values in the AI era	Conceptual / Philosophical	General Education	Philosophy of Education
Tarisayi, K.	2024	Responsible AI adoption in higher education	Conceptual Paper	Higher Education	Leadership
Torres, M., et al.	2024	Student attitudes toward AI	Empirical Study	Higher Education	Perceptions
Yun, G., Lee, K., & Choi, H.	2024	AI and student learning	Bibliometric Analysis	General Education	Learning Analytics
Yu-peng, L., & Yu, Z.	2023	AI chatbots in education	Bibliometric Analysis	General Education	Chatbots
Zawacki-Richter, O., et al.	2019	AI in higher education	Systematic Review	Higher Education	Foundational Review

Discussion

This systematic review provides a timely synthesis of research on Artificial Intelligence (AI) in education published between 2024 and 2025, a period marked by rapid technological diffusion and heightened institutional attention to generative AI. The findings reveal a field at a critical juncture—characterized by conceptual expansion and reflective synthesis, yet constrained by limited primary empirical evidence. This discussion interprets the key patterns identified in the Results and situates them within broader debates on educational innovation, ethics, and governance.

Dominance of Meta-Research and the Research–Practice Gap

One of the most salient findings is the strong dominance of bibliometric, conceptual, and review-based studies, which together constitute over 60% of the reviewed literature. This pattern confirms earlier observations that AI-in-education research is currently more focused on mapping knowledge, theorizing implications, and synthesizing trends than on generating new empirical evidence. While such meta-research plays a crucial role in consolidating an emerging field, its predominance also signals a widening research–practice gap.

The limited proportion of empirical studies suggests that educational institutions are adopting AI technologies faster than researchers are systematically evaluating their real-world impacts. As a result, many claims regarding AI's effectiveness in improving learning outcomes, well-being, or equity remain largely inferential. This imbalance raises concerns about evidence-based

policymaking and underscores the need for context-sensitive empirical research that examines how AI tools function across diverse educational settings.

Personalization and Learner Autonomy as Central Narratives

The reviewed literature consistently emphasizes AI's capacity to support personalized learning and self-regulated learning. This focus reflects a broader pedagogical shift toward learner-centered models and aligns with longstanding educational theories that prioritize autonomy, feedback, and adaptive instruction. However, the review also indicates that much of the evidence supporting these claims is derived from conceptual arguments or short-term evaluations rather than longitudinal or comparative studies.

This suggests that personalization has become a normative aspiration within AI-in-education discourse rather than a fully substantiated outcome. While AI-driven personalization holds promise, its educational value depends heavily on pedagogical design, institutional capacity, and educator mediation. Without empirical validation, there is a risk that personalization narratives may oversimplify complex learning processes or obscure unintended consequences, such as increased cognitive load or unequal access.

Generative AI and the Reconfiguration of Assessment

The emergence of generative AI represents a significant inflection point in the literature. Studies published during the review period increasingly frame generative AI as both a pedagogical opportunity and a threat to academic integrity. This dual framing reflects a broader transition in educational discourse—from viewing AI as a detection problem to recognizing it as a catalyst for rethinking assessment design.

Rather than focusing solely on preventing misuse, recent scholarship advocates for assessment models that emphasize process, reflection, and higher-order thinking. This shift has important implications for curriculum design and evaluation practices, suggesting that AI may ultimately drive more authentic and learning-oriented assessment approaches. However, the absence of robust empirical studies examining the effectiveness of such redesigned assessments highlights an urgent need for experimental and longitudinal research in this area.

AI Literacy, Ethics, and Institutional Preparedness

Another critical theme concerns the persistent gap in AI literacy among both educators and students. Despite widespread acknowledgment of AI's growing relevance, formal AI education remains uneven and fragmented. This lack of preparedness constrains the responsible use of AI tools and increases the likelihood of uncritical adoption or misuse.

Ethical concerns—including algorithmic bias, data privacy, surveillance, and the erosion of human-centered learning relationships—feature prominently across the reviewed studies. Notably, much of the ethical literature adopts a normative or conceptual orientation, proposing principles and frameworks rather than empirically examining how ethical governance is enacted in practice. This suggests that ethical discourse has outpaced institutional implementation, reinforcing the need

for governance mechanisms that translate ethical principles into operational policies and pedagogical guidelines.

Implications for Educational Systems

Taken together, the findings indicate that AI in education is evolving unevenly across dimensions of innovation, governance, and evidence generation. Educational systems appear to be navigating AI integration reactively, responding to technological advances without fully developed pedagogical or regulatory infrastructures. This creates a landscape in which innovation coexists with uncertainty, and where ethical and equity considerations risk being addressed retrospectively rather than proactively.

The results also highlight disparities across educational contexts. Higher education and professional training dominate the literature, while school-level education receives comparatively limited attention. This imbalance raises questions about scalability, equity, and the transferability of AI-driven practices across educational levels.

Overall, this discussion underscores that the central challenge facing AI in education is not technological capability, but institutional readiness, pedagogical alignment, and empirical validation. Addressing these challenges requires coordinated efforts among researchers, educators, and policymakers to ensure that AI adoption is not only innovative, but also evidence-based, ethically grounded, and socially equitable.

Limitations

This systematic review has several limitations that should be acknowledged. First, the review was restricted to English-language, peer-reviewed publications, which may have excluded relevant studies published in other languages or in regional outlets. Second, the focus on the 2024–2025 period, while intentional to capture the most recent developments, limits longitudinal comparison with earlier phases of AI adoption in education. Third, the predominance of bibliometric, conceptual, and review-based studies within the included literature constrained the ability to assess causal relationships or measurable educational outcomes. Finally, the narrative synthesis approach, necessitated by methodological heterogeneity, does not permit quantitative effect-size estimation. These limitations suggest that the findings should be interpreted as a descriptive and analytical snapshot of current research trends rather than definitive evidence of educational impact.

Conclusion

This systematic review provides a timely and focused synthesis of Artificial Intelligence research in education published between 2024 and 2025, capturing a period of accelerated technological adoption and conceptual consolidation. The findings demonstrate that the field is characterized by strong engagement with theoretical reflection, ethical considerations, and bibliometric mapping, alongside a notable scarcity of primary empirical research. While AI is widely framed as a driver of personalized learning, learner autonomy, and pedagogical innovation, the evidence base supporting these claims remains uneven.

The review highlights generative AI as a critical turning point in educational discourse, reshaping debates on assessment, academic integrity, and institutional governance. At the same time, persistent gaps in AI literacy, ethical implementation, and policy alignment underscore the need for more coordinated and evidence-driven approaches to AI integration. Overall, the study contributes a consolidated, up-to-date perspective on the evolving AI-in-education landscape and underscores the urgency of shifting from conceptual promise toward empirically grounded, ethically responsible, and context-sensitive educational practice.

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