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Generative Artificial Intelligence as a Cultural Mediator in Higher Education Learning: A Scoping Review

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Abstract
The rapid expansion of generative artificial intelligence (Gen AI) in higher education is reshaping not only learning practices but also the cultural conditions through which students engage with knowledge, academic communities, and their responsibilities as learners. While existing research has predominantly examined Gen AI through technological, pedagogical, and ethical perspectives, its role in transforming learning culture remains insufficiently synthesised. This study aims to synthesise how Gen AI reshapes learning culture in higher education by examining transformations in learning practices, academic norms, academic identity, learning interactions, and self-regulated learning. Guided by the JBI methodology and reported in accordance with PRISMA-ScR, this scoping review identified, appraised, and thematically synthesised 25 peer-reviewed studies published between 2020 and 2026. The synthesis indicates that AI-mediated learning culture emerges through dynamic interactions among Gen AI affordances, academic norms, learner identity, learning interactions, and self-regulation mechanisms. Gen AI therefore operates not merely as a learning tool, but as a socio-cultural mediator that influences how students study, produce knowledge, collaborate, and negotiate academic responsibility. Drawing on these findings, the review proposes an AI-Mediated Learning Culture Framework that maps the interrelationships between technological affordances, academic practices, and learner agency. This conceptual synthesis offers directions for empirical research and supports higher education institutions in designing AI-responsive learning environments.
***Keywords:** Generative Artificial Intelligence; AI-Mediated Learning Culture; Higher Education; Learning Practices; Academic Identity; Self-Regulated Learning; Scoping Review*

Abstrak
Perkembangan pesat kecerdasan buatan generatif (Gen AI) di pendidikan tinggi tidak hanya membentuk kembali praktik pembelajaran, tetapi juga kondisi budaya di mana mahasiswa terlibat dengan pengetahuan, komunitas akademik, dan tanggung jawab mereka sebagai pembelajar. Meskipun penelitian yang ada sebagian besar telah mengkaji Gen AI melalui perspektif teknologi, pedagogi, dan etika, perannya dalam mentransformasi budaya pembelajaran masih belum cukup disintesis. Studi ini bertujuan untuk mensintesis bagaimana Gen AI membentuk kembali budaya pembelajaran di pendidikan tinggi dengan mengkaji transformasi dalam praktik pembelajaran, norma akademik, identitas akademik, interaksi pembelajaran, dan pembelajaran mandiri. Dipandu oleh metodologi JBI dan dilaporkan sesuai dengan PRISMA-ScR, tinjauan cakupan ini mengidentifikasi, menilai, dan mensintesis secara tematik 25 studi yang ditinjau sejawat yang diterbitkan antara tahun 2020 dan 2026. Sintesis menunjukkan bahwa budaya pembelajaran yang dimediasi AI muncul melalui interaksi dinamis antara kemampuan Gen AI, norma akademik, identitas pembelajar, interaksi pembelajaran, dan mekanisme pengaturan diri. Oleh karena itu, Gen AI tidak hanya berfungsi sebagai alat pembelajaran, tetapi juga sebagai mediator sosio-kultural yang memengaruhi cara mahasiswa belajar, menghasilkan pengetahuan, berkolaborasi, dan menegosiasikan tanggung jawab

akademik. Berdasarkan temuan ini, tinjauan ini mengusulkan Kerangka Budaya Pembelajaran yang Dimediasi AI yang memetakan hubungan antara kemampuan teknologi, praktik akademik, dan agensi pembelajar. Sintesis konseptual ini menawarkan arahan untuk penelitian empiris dan mendukung lembaga pendidikan tinggi dalam merancang lingkungan pembelajaran yang responsif terhadap AI.

Kata kunci: *AI-Generstif; Budaya Belajar yang Dimediasi AI; Pendidikan Tinggi; Praktik Pembelajaran; Identitas Akademik; Self-Regulated Learning; Scoping Review*

Introduction

Digital transformation is redefining higher education from a system centred on knowledge transmission toward an adaptive, collaborative, and technology-mediated learning ecosystem. Within this shift, artificial intelligence (AI) has evolved beyond computational data processing into an active learning infrastructure capable of generating content, delivering feedback, supporting problem-solving, and facilitating knowledge construction across diverse educational contexts (Qian, 2025). The rapid diffusion of generative AI platforms, such as ChatGPT, Gemini, and Claude, further accelerates this transformation by enabling students to produce text, visuals, code, and other academic resources through natural-language interaction. Consequently, students increasingly employ generative AI to search for references, structure writing, develop arguments, and address complex academic tasks, positioning AI not merely as a supplementary tool but as an increasingly integral element of contemporary higher education learning practices (Amofa et al., 2025).

As generative AI becomes embedded in students' everyday academic activity, its significance extends beyond functional assistance to the reconfiguration of how learning is enacted, interpreted, and valued in higher education. Students increasingly employ generative AI for knowledge retrieval, communication, reflection, academic decision-making, instructional comprehension, prompt engineering, AI-assisted writing, brainstorming, and conversational learning, positioning it as both an educational resource and a medium of academic engagement (Jensen et al., 2025). From a sociocultural perspective, technology becomes a cultural artefact when its sustained use is woven into social practices and shapes cognition, interaction, and the interpretation of everyday activity; accordingly, generative AI may form part of a wider cultural ecology that influences students' academic practices, norms, values, and identities (Lelescu et al., 2025). Yet, despite growing evidence of AI's educational potential, risks, and practical implications, prior research has largely framed generative AI as a

technological tool, an individual-level adoption variable, or an intervention for improving learning outcomes, leaving its role in shaping AI-mediated learning culture insufficiently synthesised.

Contemporary Gen AI research in higher education has predominantly examined student adoption, determinants of use, learning outcomes, academic integrity, instructional effectiveness, and assessment practices (Amofa et al., 2025; Luo et al., 2025; Qian, 2025). Although these concerns are important, they insufficiently explain how repeated, socially situated, and institutionally conditioned Gen AI use reshapes learning culture through everyday academic practices. In particular, limited attention has been given to how Gen AI-mediated activities influence learning interactions, self-regulated learning, academic norms, shared values, and learner identities, or how academic communities negotiate these changes. This gap is consequential because cultural transformation does not arise from technology alone; it emerges through the dynamic interplay among Gen AI's affordances, institutional expectations, academic values, social relationships, and learner agency.

A further conceptual gap concerns the limited synthesis linking GenAI use to the broader transformation of learning culture in higher education. While existing research has associated GenAI with learning outcomes, motivation, engagement, academic integrity, and assessment practices, it remains fragmented in explaining how these dimensions collectively normalise AI-mediated learning, reshape academic identities, renegotiate norms of responsible use, and reconfigure interactions among students, instructors, peers, and AI systems (Bittle & El-Gayar, 2025; Hon, 2026; F. Wu et al., 2025). To address this gap, this study defines *AI-mediated learning culture* as an educational environment in which GenAI is embedded in everyday academic activities and mediates how students learn, interact, construct knowledge, and understand academic responsibility. This culture emerges through the dynamic relationship among learning practices, academic norms, learner identity, learning interactions, and self-regulated learning, shaped by GenAI affordances, learner agency, institutional conditions, and community expectations (Bittle & El-Gayar, 2025; Jin et al., 2025; F. Wu et al., 2025). Accordingly, this scoping review synthesises evidence on how GenAI reshapes learning culture in higher education and proposes an AI-Mediated Learning Culture Framework that maps the relationships among technological affordances, academic practices, and learner agency.

Literature Review

Generative AI in Higher Education: From Educational Technology to Learning Ecosystem

Gen AI is a major step in higher education's digital transition. Gen AI can create content, provide instant feedback, encourage reflective conversation, and assist knowledge creation, unlike past digital learning systems. GenAI can now participate more actively in learning activities, moving from a supplementary technological tool to an integral feature of modern learning environments (Hall, 2024).

Students now use Gen AI for information retrieval, assignment preparation, argument creation, problem-solving, research support, and simulated academic interaction (Johnston et al., 2024; Yusuf et al., 2024). Higher education is heading toward an AI-enabled learning ecosystem where students, lecturers, learning resources, and AI systems share knowledge generation and consumption.

This growth has mostly been studied from adoption, efficacy, integrity, or result perspectives. These theories explain whether and how Gen AI is utilized, but not how it reorganizes learning socio-cultural settings. Gen AI is a mediating element in a learning ecosystem that affects academic practices, institutional norms, social interaction, and learner agency, according to this review.

Sociocultural Perspective on Generative AI

Gen AI-mediated learning culture is primarily theorized using Sociocultural Theory. This view views learning as socially situated and culturally mediated rather than individual (Vygotsky, 1978). Cultural tools support action and change how people think, communicate, and interpret problems. The sociocultural perspective also highlights the importance of social interaction in determining how Gen AI is used and interpreted. Lecturer guidance, peer discussion, institutional policy, disciplinary conventions, and academic norms influence students' AI practices. AI-mediated practices may establish new learning habits in academic communities (Lelescu et al., 2025). Gen AI does not change culture automatically; learning culture evolves through socially negotiated AI use.

On this view, Gen AI mediates culture. Through prompts, generated explanations, feedback, and interaction, Gen AI helps students access, assess, reformulate, and develop information. Recurrent use of Gen AI is educational because it mediates students' cognitive and social participation in academic work. AI's cultural influence

shapes learning communities' cognitive frameworks, interaction patterns, and social practices.

Learning Culture in Higher Education

Learning culture is a learning community's values, norms, beliefs, practices, and interaction patterns that shape learning and understanding. Students' learning practices, relationships with lecturers and peers, usage of educational resources, academic identities, and understanding of appropriate academic involvement make up learning culture in higher education (Johnston et al., 2024; Yusuf et al., 2024).

When academic communities use, acknowledge, and exchange strategies, they may become routines that affect learning expectations. So, AI-assisted writing, prompt engineering, brainstorming, and conversational learning may be more than strategies. Normalization may impact student learning, interaction, assessment, and academic proficiency. GenAI studies as a solo intervention or learning result predictor differ. Thus, it examines how Gen AI is incorporated in learning processes and how this may change higher education learning organisation.

Academic Identity in the Era of Generative AI

Academic identity denotes how students perceive and characterise themselves as learners, knowledge seekers, participants in the academic community, and persons accountable for the learning process (Johnston et al., 2024). Gen AI challenges this identification because AI systems may now help with intellectual tasks like drafting, summarizing, producing ideas, and explaining concepts. AI may enhance efficiency and learning quality, but students may worry that overuse may undermine critical thinking and autonomous learning (Yusuf et al., 2024). The evolution of generative AI is catalysing a transformation in academic identity from knowledge searchers to AI-assisted knowledge curators (Hall, 2024; Johnston et al., 2024). Students search, organize, appraise, and integrate AI-acquired data in this new paradigm.

Academic Norms and Integrity in AI-Based Learning

The era of generative AI introduces novel applications of technological aid that are challenging to distinctly classify as either infractions or valid academic activities. This causes institutions to review student learning norms, rules, and academic standards. Recent work suggests that higher education AI conversation has shifted from "Is AI permissible?" to "How can AI be employed responsibly?" The focus is now on

usage norms that protect academic integrity while using AI to improve learning. Transparency of AI use, disclosure of AI aid in academic assignments, and students' ability to analyze AI outputs are increasingly important parts of rising academic standards (Bittle & El-Gayar, 2025; Coates et al., 2025).

Academic norms increasingly require AI assistance transparency, disclosure, content verification, and work accountability. However, formal institutional policies do not determine these norms. Students may create informal understandings of academic requirements through peer interaction, course experiences, and personal interpretations when policies are unclear or inconsistently administered (Simkute et al., 2025). Academic norms surrounding GenAI are therefore continually negotiated within the learning community. From an activity-system perspective, academic integrity is a rule-mediated aspect of collaborative learning. AI use may conflict with authorship, reliance, innovation, and evaluation validity.

Self-Regulated Learning in AI-Mediated Learning

Self-regulated learning (SRL) is becoming important in understanding the effects of generative AI in higher education. SRL is students' ability to plan, monitor, regulate, and assess their learning. This capability distinguishes AI that promotes academic reliance from AI that promotes deep learning in an AI-driven educational setting (Banihashem et al., 2025; Lan & Zhou, 2025).

Gen AI may help self-regulation by providing immediate feedback, personalised explanations, reflective prompts, and metacognitive support, according to research. It may help students identify misconceptions, plan learning strategies, set goals, and evaluate comprehension (X. Y. Wu & Chiu, 2025; Yilmaz et al., 2026). When used as a reflective and cognitive-support tool, GenAI can strengthen planning, monitoring, and evaluation processes.

Using GenAI instead of cognitive effort may reduce students' analytical engagement, reflection, and problem-solving. GenAI may improve self-regulation when learners critically evaluate and actively use its outputs, but it may weaken it when learners accept immediate answers without meaningful engagement (Anders & Speltz, 2025). This distinction reinforces the importance of learner agency within AI-mediated learning culture.

Method

Research Methodology

This study employed a scoping review to map, identify, and synthesise the emerging and conceptually heterogeneous literature on AI-mediated learning culture in higher education. This approach is appropriate for examining developing research domains, clarifying key concepts and operational definitions, describing the scope of existing evidence, and identifying unresolved knowledge gaps rather than evaluating narrowly defined intervention effects (Pollock et al., 2024; Samuel, 2024). Given that the literature on generative AI spans higher education, educational technology, digital learning, educational psychology, and artificial intelligence, a scoping review provides a broader conceptual mapping than a systematic review designed to address focused evidence questions (Peters et al., 2020).

The review followed the Joanna Briggs Institute (JBI) methodological guidance and was reported in accordance with PRISMA-ScR to strengthen transparency, methodological rigour, and replicability (JBI Scoping Review Network, 2024; Xue et al., 2024). Research questions were developed using the Population–Concept–Context framework, comprising higher education students, AI-mediated learning culture, and higher education settings. The review proceeded through five stages: formulating research questions, identifying literature sources, selecting eligible studies, extracting and mapping data, and synthesising and reporting findings. Accordingly, the review addressed four questions: (RQ1) What are the publication characteristics of studies on generative AI and higher education learning culture? (RQ2) What conceptual components constitute AI-mediated learning culture in higher education literature? (RQ3) How are learning practices, academic norms, academic identity, learning interactions, and self-regulated learning interconnected in the formation of AI-mediated learning culture? and (RQ4) What research gaps remain in studies of AI-mediated learning culture in higher education?

Eligibility Criteria and Search Strategy

Eligible studies were peer-reviewed, English-language journal articles published between 2020 and 2026 that examined generative AI in higher education and addressed at least one dimension of AI-mediated learning culture, including learning practices, academic identity, academic norms, learning interactions, or self-regulated learning. Studies were required to be available in full text and open access. Studies were excluded

if they focused on primary or secondary education, did not substantially address higher education students, were editorials, opinion pieces, news items, or brief commentaries, lacked accessible full text, or duplicated previously identified publications. The literature search was conducted across Scopus, Web of Science, ERIC, ScienceDirect, and SpringerLink to capture interdisciplinary evidence from education, educational technology, psychology, and artificial intelligence. Search terms were structured around three concept clusters and combined using Boolean operators: ("generative AI" OR "artificial intelligence" OR "ChatGPT") AND ("learning culture" OR "learning practices" OR "academic identity" OR "academic norms" OR "learning interaction" OR "self-regulated learning") AND ("higher education" OR university OR college). This strategy was designed to identify studies examining both the use of generative AI and its implications for the practices, norms, identities, interactions, and regulatory processes that constitute learning culture in higher education.

Study Selection, Data Charting, and Synthesis

The database identified 555 records across Scopus (n = 186), Web of Science (n = 128), ERIC (n = 74), ScienceDirect (n = 96), and SpringerLink (n = 71). After removing 137 duplicate records, 418 unique records underwent title and abstract screening, of which 335 were excluded because they did not address higher education, generative AI, AI-mediated learning activities, learning-culture dimensions, or the specified publication criteria. The full texts of 83 articles were then assessed for eligibility; 58 were excluded because they did not substantively examine generative AI or AI-mediated learning among higher education students (n = 16), were not situated in higher education (n = 11), did not address learning-culture dimensions (n = 14), focused on other populations (n = 6), were not peer-reviewed journal articles (n = 5), lacked accessible full texts (n = 4), or were duplicate publications (n = 2). Consequently, 25 peer-reviewed articles were included in the final synthesis, with the selection process reported through a PRISMA-ScR flow diagram. Data charting captured publication characteristics, geographical distribution, research designs, study foci, and findings relevant to AI-mediated learning culture. The evidence was synthesised through descriptive numerical summaries and thematic synthesis, organised around five interconnected dimensions: learning practices, academic norms, academic identity, learning interactions, and self-regulated learning. This integrated approach supported

the development of a conceptual account of how generative AI shifts from a functional educational tool toward a mediating force in higher education learning culture.

Result and Discussion

Attributes and Thematic Mapping of the Analysed Literature

Across 25 peer-reviewed studies published between 2020 and 2026, scholarly attention to ChatGPT and related Gen AI applications intensified markedly after 2024, with research concentrating on adoption, learning effectiveness, AI literacy, academic integrity, and self-regulated learning. Although GenAI is commonly associated with improved information access, task completion, feedback, and academic efficiency, its recurrent role in reshaping learning culture remains insufficiently examined and is typically subsumed within pedagogical, ethical, or technological debates. The thematic synthesis therefore conceptualises AI-mediated learning culture through mutually constitutive dimensions—learning practices, academic norms, academic identity, learning interactions, and self-regulated learning—through which GenAI becomes embedded in academic life.

1. Learning Practices: From Gen AI Adoption to Cultural Transformation

The reviewed studies indicate that GenAI is reconfiguring students' learning practices from information retrieval toward iterative knowledge work, including conceptual clarification, idea development, academic writing, problem-solving, and revision (Luo et al., 2025; Qian, 2025). Its affordances—content generation, conversational assistance, immediate feedback, and iterative refinement—support AI-assisted writing, prompt engineering, brainstorming, and conversational learning (Jensen et al., 2025; Simkute et al., 2025; F. Wu et al., 2025). When these practices become routinised across coursework, peer interaction, and lecturer expectations, Gen AI operates not merely as an adopted tool but as a socio-cultural mediating artefact that shapes knowledge construction and academic responsibility. Accordingly, academic competence increasingly depends on students' ability to prompt strategically, verify and evaluate AI outputs, compare arguments, and integrate generated content ethically into independent reasoning. Consequently, the normalisation of these recurrent AI-supported activities provides an initial mechanism through which Gen AI moves from a functional learning tool to a formative element of higher education learning culture.

2. Academic Norms and Identity: Negotiating Responsible Gen AI Use

The reviewed studies show that the expansion of AI-supported writing, idea generation, and feedback practices requires academic communities to renegotiate what constitutes legitimate academic work. Concerns surrounding attribution, transparency, authorship, verification of AI-generated content, integrity, and responsibility for submitted work recur across the literature, indicating that conventional understandings of academic misconduct are insufficient for GenAI-mediated learning (Bittle & El-Gayar, 2025; Coates et al., 2025; Jin et al., 2025; Johnston et al., 2024; Yusuf et al., 2024). Academic integrity therefore extends beyond plagiarism prevention to include transparent disclosure of AI assistance, critical verification of outputs, preservation of meaningful student authorship, and accountability for academic decisions. These norms are not imposed solely through institutional policy; they are continually negotiated through classroom routines, peer interaction, and disciplinary expectations, shaping the culturally acceptable boundaries of AI use. Within this negotiated environment, students' academic identities shift from information seekers and independent producers towards evaluators, verifiers, managers, and curators of AI-supported knowledge. Rather than diminishing learner agency, this shift makes critical judgement, AI literacy, and ownership of academic reasoning central to responsible participation in an emerging AI-mediated learning culture.

3. Learning Interaction: Toward a Human–AI Learning Ecosystem

The reviewed studies indicate that Gen AI reconfigures learning interaction by adding student–AI dialogue to relationships traditionally centred on students, lecturers, peers, and instructional resources. Students use Gen AI to seek explanations, clarify concepts, test understanding, explore alternative ideas, and obtain preliminary feedback, making learning support more immediate, personalised, and iterative (Hall, 2024; Lelescu et al., 2025). Its educational value, however, lies not in replacing human engagement but in its purposeful integration with lecturer guidance, peer dialogue, and institutional expectations; this positioning makes Gen AI a complementary mediating resource within an emerging human–AI learning ecosystem.

4. Self-Regulated Learning: The Core Mechanism of AI-Mediated Learning Culture

The reviewed studies position self-regulated learning (SRL) as the cross-cutting mechanism that determines whether GenAI strengthens learner agency or encourages

intellectual dependence. Gen AI can support students' planning, monitoring, reflection, and evaluation through rapid feedback, personalised explanations, and metacognitive prompts, thereby facilitating more independent and reflective knowledge construction when used strategically (Banihashem et al., 2025; Lan & Zhou, 2025). Conversely, passive reliance on AI-generated responses may weaken cognitive engagement, analytical reasoning, and autonomous problem-solving (Anders & Speltz, 2025; X. Y. Wu & Chiu, 2025). SRL is therefore not a final outcome of AI integration but a dynamic capacity that continuously enables, constrains, and is reshaped by AI-mediated learning practices, academic norms, learner identities, and learning interactions.

AI-Mediated Learning Culture Framework and Institutional Implications

The synthesis positions AI-mediated learning culture as an iterative sociocultural process: GenAI affordances reshape learning practices, which renegotiate academic norms, reconstitute learner identity, and reorganise human–AI interaction, while self-regulated learning determines whether AI extends agency or displaces intellectual effort. The proposed framework therefore conceptualises GenAI as a mediator whose effects are conditioned by institutional policy, pedagogical guidance, disciplinary expectations, AI literacy, and equitable access. Its practical implication is clear: institutions should replace generic AI rules with integrated governance, ethical and critical AI literacy, and process-oriented assessment, while lecturers design tasks requiring students to critique, verify, and transparently disclose AI use (*see Figure 1*).

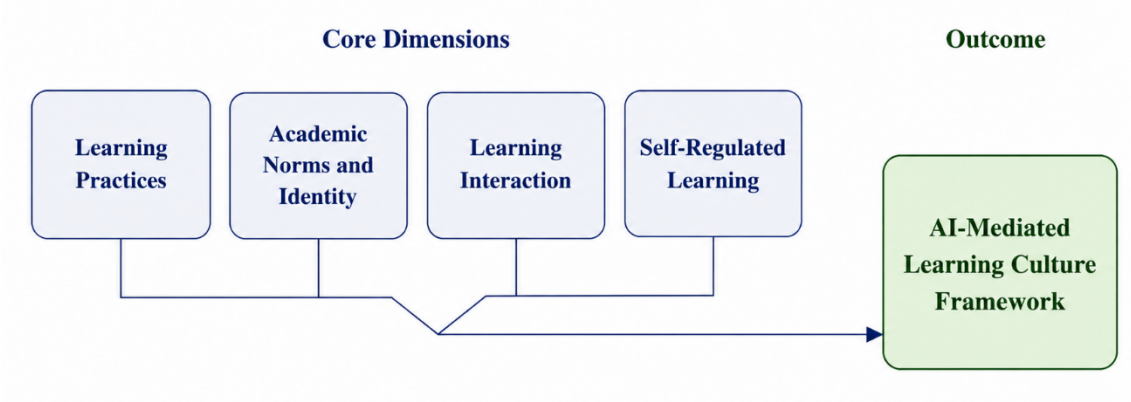

Figure 1 AI-Mediated Learning Culture Framework

The framework does not claim a universal or deterministic sequence. Rather, it provides a conceptual map for understanding how Gen AI may contribute to learning-culture transformation under particular institutional and social conditions. Its

contribution lies in connecting dimensions commonly examined separately adoption, academic integrity, identity, interaction, and self-regulation into an integrated account of AI-mediated learning in higher education.

Conclusion

This study shows that generative AI is changing higher education learning cultures. Generative AI affects students' values, norms, behaviors, and academic identities in modern learning environments in both technological and pedagogical ways. This study enhances the debate on generative AI in higher education by introducing the AI-Mediated Learning Culture Framework, providing a novel viewpoint on learning transformation as a socio-cultural process facilitated by artificial intelligence.

The conceptual framework needs empirical confirmation in many higher education contexts. Thus, future research should develop and validate measurement instruments for AI-mediated learning culture, examine structural relationships among dimensions using Structural Equation Modelling (SEM) or PLS-SEM, and conduct longitudinal studies to track student learning culture changes as AI becomes more integrated into academic practises. To assess the model's robustness, comparison studies across nations, fields, and AI implementation levels are needed. The research agenda may produce a more sophisticated theory of learning culture in the generative AI era and provide an empirical foundation for learning policies, curricula, and strategies that adapt to AI-influenced higher education transformation.

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