

Artificial Intelligence and the Academic Lecturer in African Higher Education: A Narrative Review of Preparedness, Perceptions, and Possibilities

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ABSTRACT

This narrative review challenges the dominant narrative that African university lecturers are unprepared or resistant to artificial intelligence (AI), asking instead: what happens when willing, innovative academics encounter institutional environments that systematically thwart their agency? Synthesizing 52 peer-reviewed studies and gray literature (2014–2025), with a predominant focus on Anglophone East and Southern Africa while acknowledging the relative absence of Francophone, Lusophone, and Arabic-speaking scholarship, through an integrated lens of Technological Pedagogical Content Knowledge (TPACK) and Institutional Theory, this review maps the structural, pedagogical, and governance factors shaping lecturers' engagement with AI across African higher education. The analysis reveals a profound disconnect: lecturers demonstrate high awareness and genuine enthusiasm for AI's pedagogical potential, yet their aspirations collapse under three intersecting failures, including chronic infrastructural deficits (reported in 90% of studies), a complete absence of pedagogy-focused training, and a governance vacuum in which fewer than half of institutions possess any formal AI policy. This produces four distinct realities: the constrained dreamer, pedagogy adrift, the shadow of the Global North, and policy spectatorship. The paper argues that African lecturers are not laggards but constrained innovators, and that their exclusion from AI debates reflects systemic, not individual, failure. The proposed Contextually-Grounded, Lecturer-Centric (C-LEC) Framework offers a pragmatic, measurable model for universities and policymakers, with concrete indicators for tracking pedagogical capacity-building against infrastructure procurement, prioritizing pedagogical capacity-building before technological procurement and co-developing ethical guardrails with lecturers. Without deliberate, lecturer-centered intervention, AI risks hardening, rather than bridging, global educational inequalities. This review provides an evidence-based roadmap for moving from aspirational rhetoric to implementable practice in African higher education.

Keywords: Artificial intelligence, higher education, African lecturers, digital divide, epistemic justice, institutional governance, C-LEC Framework

INTRODUCTION

The rapid proliferation of artificial intelligence (AI) characterizes the Fourth Industrial Revolution, fundamentally reshaping higher education globally (Zawacki-Richter et al., 2019; Chen et al., 2020). AI technologies, including intelligent tutoring systems, learning analytics, adaptive learning platforms, and generative AI tools like ChatGPT, offer personalized learning experiences, enhanced administrative efficiency, and innovative pedagogical support (Bond et al., 2021; Luckin et al., 2016). For developing nations, particularly in Africa, AI holds promise for educational leapfrogging to address persistent challenges of access, quality, and relevance (Mhlanga, 2023; Asongu & Odhiambo, 2020). However, uncritical adoption of AI technologies developed in the Global North risks exacerbating existing inequalities, sustaining epistemic injustice, and marginalizing local knowledge systems (Czerniewicz, 2018; Olojede & Olakulehin, 2024).

African higher education operates within a complex landscape characterized by underfunding, inadequate infrastructure, overcrowding, and historical legacies of underdevelopment (McCowan, 2019). The digital divide manifests through unstable electricity, limited internet connectivity, and poor access to devices (Czerniewicz et al., 2019; Funda & Francke, 2024). Within these challenging institutional settings, the academic lecturer serves

as the critical agent of change. Decades of educational technology research demonstrate that successful innovation depends on the human actors at its core; their acceptance, competence, and ability to integrate new tools into pedagogical practice (Bond et al., 2020; Mishra & Koehler, 2006). Lecturers act as gatekeepers, interpreters, and adapters, mediating between classroom realities and institutional demands (Selwyn, 2022).

The emergence of generative AI in late 2022 has intensified and complicated lecturer engagement with technology. Preliminary evidence suggests African lecturers navigate conflicting demands: enthusiasm for AI's potential to reduce administrative burdens and enhance research productivity; anxiety about academic integrity and devaluation of traditional assessment; concerns about the applicability and bias of tools trained on non-African data; and frustration with institutional environments offering little direction or support (Mabanja et al., 2025; Mah et al., 2025; Alnsour et al., 2025).

The most comprehensive recent study of AI adoption in African higher education, surveying 47 institutions across Anglophone and Francophone Africa, found that while AI benefits are widely acknowledged, and institutional adoption remains limited, fragmented, and unsupported by coherent policies (Ashesi University, 2025). Less than half of HEIs reported formal AI governance frameworks, with most adoption confined to AI-enabled learning management systems with minimal pedagogical integration. Similarly, Khoza and van der Walt's (2025) systematic review of AI-enhanced pedagogies in the Global South found that while administrative and technical efficiency applications predominate, pedagogical integration remains scarce.

Despite this growing body of work, the literature remains fragmented across nations, institutional contexts, and disciplinary perspectives. This review addresses the need for a comprehensive, synthesized, and interpretive narrative that integrates disparate evidence to create a cohesive understanding of lecturer engagement with AI across the African continent.

Objectives

Main Objective

To synthesize and critically analyze existing research on artificial intelligence and academic lecturers in higher education across developing African countries, thereby developing a comprehensive understanding of lecturer preparedness, perceptions, challenges, and the institutional contexts that shape them.

Specific Objectives

1. To identify and synthesize research on African university lecturers' awareness, attitudes, and use of AI in teaching and learning
2. To examine the major barriers and enablers influencing lecturers' AI integration as documented in the literature
3. To explore how national and institutional policy environments shape lecturers' engagement with AI across African contexts
4. To critically assess the strengths, weaknesses, and gaps in the current evidence base
5. To develop a conceptual framework for understanding and improving lecturer readiness and institutional capacity for responsible AI integration

LITERATURE REVIEW

Global Discourse on AI in Higher Education

Research on AI in higher education has grown exponentially over the past decade. The literature consistently emphasizes AI's potential for personalized learning (Chen et al., 2020; Luckin et al., 2016), learning analytics for identifying at-risk students (Ifenthaler & Yau, 2020; Siemens & Long, 2011), automated assessment (Deeva et al., 2021), and institutional operational optimization (Funda & Francke, 2024). However, critical perspectives

raise concerns about algorithmic bias (Baker & Hawn, 2021; Noble, 2018), educator deskilling (Selwyn, 2022; Zawacki-Richter et al., 2019), and the digital divide (van Deursen & van Dijk, 2019). The pedagogical integration of AI remains limited, with most applications focused on administrative and technical efficiency rather than transformative teaching practices (Khoza & van der Walt, 2025; Zawacki-Richter et al., 2019).

African Higher Education Context

African higher education functions within a unique environment shaped by historical, economic, and social factors. Institutions grapple with unstable electricity, limited connectivity, and poor computer infrastructure (Asongu & Odhiambo, 2020; Czerniewicz et al., 2019). Enrolment has dramatically increased without commensurate investment in staffing, infrastructure, or funding (McCowan, 2019). The continent's linguistic diversity, over 2,000 languages spoken, poses particular challenges for AI solutions developed for English, French, or Arabic speakers (Mashile, 2020). Critical scholars emphasize that colonial histories and neocolonial processes must inform analysis of technology adoption in African education (Czerniewicz, 2018; Olojede & Olakulehin, 2024).

Research on Lecturers and Technology Adoption

Research on technology adoption in African higher education consistently identifies critical success factors: sufficient training and ongoing support for academic staff (Chawinga & Zozie, 2016; Kaliwo & Chigona, 2021); encouraging leadership and innovation culture (Czerniewicz & Trotter, 2018); contextual adaptation of imported technologies (Mashile, 2020); and addressing the persistent digital divide (Asongu & Odhiambo, 2020). The Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) have been applied to understand adoption dynamics, though their applicability to African contexts requires critical adaptation (Mashile, 2020).

Emergent AI-Specific Research in Africa

Recent AI-specific research reveals several patterns. The Ashesi University (2025) study found that while 62% of reported institutional AI adoption involves AI-enabled learning management systems, formal AI governance frameworks exist in less than half of HEIs. Khoza and van der Walt's (2025) systematic review identified inadequate infrastructure, unequal access to digital tools, low faculty readiness, and ethical concerns as major obstacles. Falebita and Kok (2024) found infrastructure deficits and inadequate lecturer training as primary barriers to STEM academics' AI integration. Single-country studies from Nigeria (Owan et al., 2023), South Africa (Tshabalala et al., 2022), Malawi (Kaliwo & Chigona, 2021), and Jordan (Alnsour et al., 2025) reveal high awareness but limited adoption, with training deficits and academic integrity concerns as major obstacles.

It is important to note that the most significant contributions to this evidence base, particularly the Ashesi University (2025) continental survey and Khoza and van der Walt's (2025) systematic review, emerged only in the past year, following the widespread availability of generative AI tools. This temporal concentration underscores both the rapid acceleration of post-generative AI scholarship on the continent and the relative novelty of the field. Prior to 2023, AI-specific research in African higher education was sparse, fragmented, and largely confined to learning analytics and intelligent tutoring systems (Zawacki-Richter et al., 2019). The post-2022 surge reflects both the urgency generated by tools like ChatGPT and the growing recognition among African scholars and institutions that AI demands systematic attention. However, this recency also means that the evidence base remains thin, with few longitudinal studies, limited replication, and an overreliance on cross-sectional surveys. The findings synthesized in this review should therefore be interpreted as an early snapshot of a rapidly evolving landscape rather than a definitive account.

Theoretical Framework

This review adopts an integrated theoretical framework combining the Technological Pedagogical Content Knowledge (TPACK) model (Mishra & Koehler, 2006) and Institutional Theory (Scott, 2014). TPACK provides a lens for examining individual lecturer knowledge and competence for AI integration, encompassing Content

Knowledge (CK), Pedagogical Knowledge (PK), Technological Knowledge (TK), and their intersections (PCK, TCK, TPK, and TPACK).

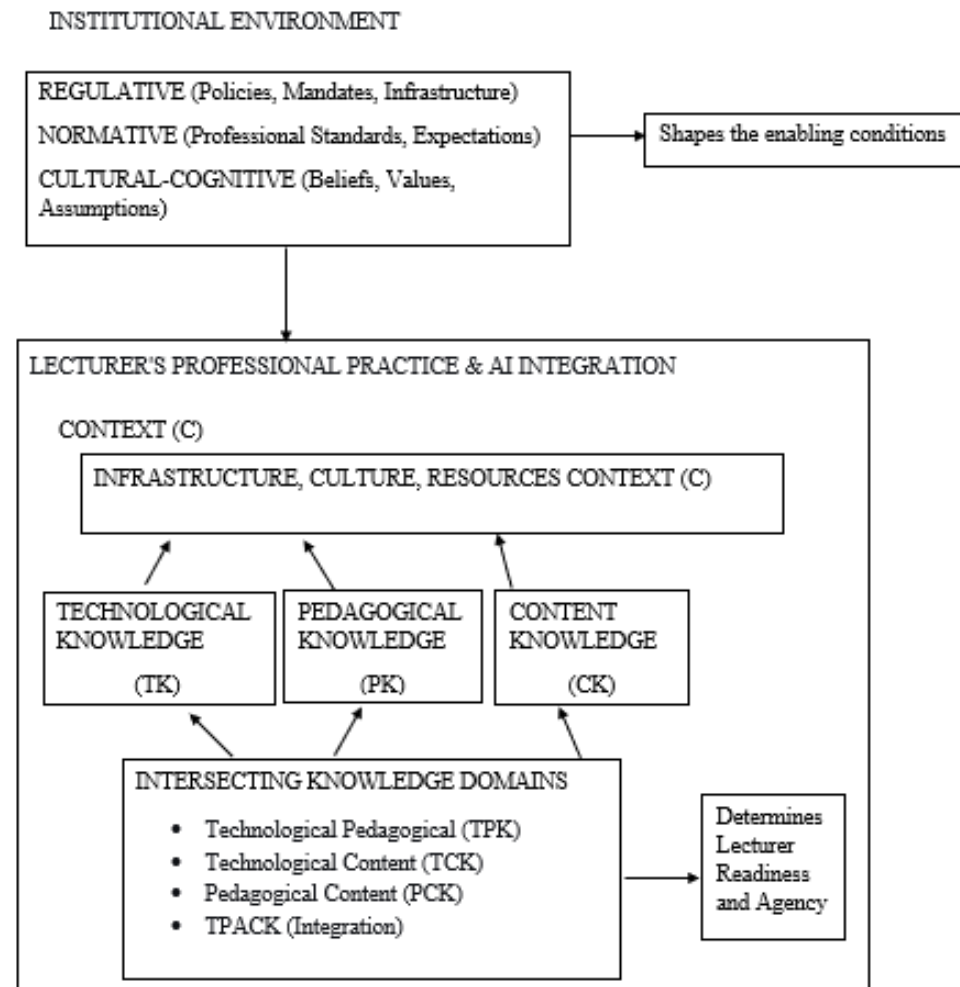


Figure 1: Integrated TPACK Conceptual Framework

Mishra's (2019) extension emphasizing Contextual Knowledge (XK) is particularly relevant for African settings where infrastructure, culture, resources, and history fundamentally shape what is possible. This contextual dimension acknowledges that lecturer knowledge alone is insufficient; the environment in which teaching occurs fundamentally conditions what knowledge can be applied and how it might be developed.

Institutional Theory illuminates the institutional environments that facilitate or constrain lecturer agency through three pillars: regulative (formal policies, rules, and infrastructure), normative (professional standards, expectations), and cultural-cognitive (shared beliefs, assumptions) (Scott, 2014).

Institutional pillars	Regulatory	Normative	Cultural-cognitive
Compliance bases	Capability to establish rules and verify compliance status	Includes values and standards that are in accordance with social obligations	Emphasis on internal interpretative mechanisms and processes consistent with organizational culture
Indicators	Rules, laws, bylaws	Certification, approved by a specialized professional body	Sharing experiences and symbolic meanings around a theme to be accepted by a group

Search for legitimization



Figure 2: Scott's (2014) three institutional pillars

Key concepts include isomorphism, pressures leading institutions to adopt similar practices (DiMaggio & Powell, 1983), and decoupling, the gap between formal policies and actual practices (Meyer & Rowan, 1977). These concepts explain why institutions may adopt AI policies to signal legitimacy to external audiences while failing to provide the training, support, and infrastructure lecturers need for meaningful engagement.

Table 1: Integration of Theoretical Frameworks

Level	Framework	Focus	Key Questions
Individual	TPACK	Lecturer knowledge and competence	What knowledge do lecturers need for AI integration? What types of knowledge are present or absent?
Institutional	Institutional Theory (Regulative)	Formal policies, rules, infrastructure	What policies govern AI use? What infrastructure is available?
Institutional	Institutional Theory (Normative)	Professional norms, expectations	What does the profession expect regarding AI? How do colleagues influence each other?
Institutional	Institutional Theory (Cultural-Cognitive)	Shared beliefs, assumptions	What do lecturers believe about teaching and AI? What taken-for-granted assumptions shape responses?
Contextual	TPACK-C	The environment shaping all of the above	How do infrastructure, culture, resources, and history condition possibilities for AI integration?

The integrated framework enables multi-level analysis, linking individual competence to institutional conditions and contextual factors. It posits that: (1) a lecturer's ability to integrate AI effectively (TPACK) is influenced by their unique expertise across knowledge domains; (2) the institutional environment either facilitates or limits this individual capacity through regulative, normative, and cultural-cognitive mechanisms; and (3) everything is conditioned by the larger African context, historical legacies, infrastructure realities, and cultural diversity, which makes certain strategies workable and others not. This framework informs the thematic analysis and framework development in this review.

METHODOLOGY

Research Design

This study employs a narrative literature review design (Green, Johnson, & Adams, 2006; Snyder, 2019), chosen for its interpretive, exploratory orientation and suitability for synthesizing diverse research designs across a rapidly evolving, heterogeneous field. The review incorporates systematic elements, comprehensive searching, explicit inclusion criteria, and documented processes, while maintaining interpretive flexibility for theory-building synthesis.

Table 2: Narrative Review vs. Systematic Review

Aspect	Systematic Review	Narrative Review	This Study
Research Question	Narrow, focused	Broad, exploratory	✓ Broad, exploratory
Search Strategy	Exhaustive, all databases	Comprehensive, purposive	✓ Comprehensive, multiple databases

Study Selection	Dual independent screening	Single researcher, transparent	✓ Single researcher with supervisor consultation
Quality Assessment	Formal tools (MMAT, etc.)	Critical appraisal integrated	✓ Integrated critical appraisal
Synthesis	Meta-analysis or thematic	Thematic, interpretive	✓ Thematic analysis
Output	Pooled estimates, evidence maps	Conceptual framework, research agenda	✓ Conceptual framework

Search Strategy

A comprehensive search was conducted across Scopus, Web of Science, ERIC, IEEE Xplore, ACM Digital Library, PubMed, APA PsycInfo, and African Journals Online (AJOL). Grey literature was sourced from ProQuest Dissertations, university repositories, and organizational reports (UNESCO, World Bank, African Union). Search terms combined four concept blocks: AI terms ("artificial intelligence," "machine learning," "chatgpt," "generative AI," "learning analytics"), higher education terms, lecturer terms, and geographical terms (African countries, "sub-Saharan Africa," "developing countries").

Inclusion Criteria

Studies were included if they focused on academic lecturers in African higher education, empirically or theoretically engaged with AI in teaching/learning contexts, were published 2014-2025 in English, and were peer-reviewed journal articles, conference proceedings, doctoral theses, or quality grey literature. The restriction to English-language publications, while practical, introduces a linguistic bias that disproportionately excludes Francophone, Lusophone, and Arabic-speaking African scholarship. This limitation is acknowledged and discussed further in Section 8.4. Studies focused solely on students, administrators, or non-tertiary levels were excluded, as were editorials, opinion pieces, and non-academic sources.

Table 3: Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
Population	Academic lecturers/faculty in African higher education	Studies focused only on students, administrators, or non-tertiary levels
Phenomenon of Interest	Empirical or theoretical engagement with AI in teaching/learning	AI mentioned only tangentially; AI for research/administration only
Context	Developing countries in Africa (UN classification)	Studies conducted outside Africa
Study Design	Empirical studies (qualitative, quantitative, mixed-methods); theoretical/conceptual papers; doctoral theses; conference proceedings	Editorials, opinion pieces, book reviews, non-academic sources
Language	English	Non-English without available translation
Time Frame	2014-2025	Pre-2014
Access	Full-text accessible	Full-text unavailable

Study Selection and Data Extraction

The selection process followed PRISMA guidelines (Page et al., 2021): database searching and deduplication, title/abstract screening, full-text retrieval and assessment, and final inclusion. Data were extracted into a standardized Microsoft Excel form capturing bibliographic information, study characteristics, AI focus, awareness/perceptions, adoption/use patterns, barriers, enablers, policy context, institutional support, direct quotations, and quality notes.

While PRISMA guidelines were followed, the single-reviewer screening process (with supervisor consultation) represents a deviation from the dual independent screening recommended for systematic reviews. This is consistent with the narrative review design, which prioritizes interpretive depth over exhaustive comprehensiveness, but is acknowledged as a limitation.

Table 4: Data Extraction Framework

Variable	Description
Bibliographic Information	Author(s), year, title, source, country
Study Characteristics	Research design, sample size, sampling method, institutional context
AI Focus	Specific AI tools or technologies examined
Awareness/Perceptions	Reported lecturer awareness, perceived usefulness, and attitudes
Adoption/Use	Reported patterns of AI adoption and use
Barriers	Factors hindering AI adoption (with frequency/thematic description)
Enablers	Factors facilitating AI adoption
Policy Context	Mention of national/institutional policies
Institutional Support	Reported support (training, infrastructure)
Direct Quotations	Verbatim participant quotes from qualitative studies
Author's Conclusions	Key conclusions and recommendations
Quality Notes	Methodological strengths and limitations

Thematic Analysis

Data synthesis employed Braun and Clarke's (2006, 2019) thematic analysis framework, modified for literature review contexts. The six phases included: familiarization with the data, initial code generation (using NVivo), theme searching, theme reviewing, theme defining and naming, and report production. Codes were both deductive (based on the theoretical framework) and inductive (derived from the data). Quality appraisal was integrated into the synthesis through critical discussion of methodological strengths and limitations.

Ensuring Rigor

Trustworthiness was ensured through credibility (clear documentation, direct quotations supporting themes, contradictory evidence identified), transferability (detailed contextual description, clear scope limitations), dependability (audit trail, explicit theme development documentation), and confirmability (reflexive journaling, interpretations grounded in data) (Nowell et al., 2017).

FINDINGS

The thematic analysis of 52 included studies revealed four overarching themes characterizing lecturer engagement with AI in African higher education.

Table 5: Geographic Distribution of Included Studies

Region	Number of Studies	Percentage	Key Countries Represented
East Africa	16	30.8%	Kenya, Rwanda, Uganda, Tanzania
Southern Africa	15	28.8%	South Africa, Malawi, Lesotho
Multi-country/Continental	12	23.1%	Various African countries
West Africa	7	13.5%	Nigeria, Ghana
Global (Theory/Methods)	5	9.6%	N/A
North Africa	1	1.9%	Morocco
Central Africa	1	1.9%	Cameroon

Note: Percentages exceed 100% due to some studies covering multiple regions.

Table 6: Distribution of Studies by Research Design

Research Design	Number of Studies	Percentage
Quantitative Surveys	12	23.1%
Qualitative Studies	11	21.2%
Case Studies/Program Evaluations	10	19.2%
Mixed-Methods	8	15.4%
Systematic/Literature Reviews	8	15.4%
Theoretical/Conceptual Papers	5	9.6%
Policy/Document Analysis	3	5.8%
Bibliometric Analysis	1	1.9%

Table 7: Methodological Quality Assessment

Quality Level	Number of Studies	Percentage	Criteria
High Quality	18	34.6%	Rigorous design; appropriate methods; clear theoretical framing; robust analysis; transparent limitations
Moderate Quality	24	46.2%	Sound methodology but some limitations (sample size, generalizability, theoretical depth)
Lower Quality	10	19.2%	Significant limitations (descriptive only, weak methods, unclear reporting)

Table 8: Distribution of Studies by Publication Year

Year	Number of Studies	Percentage	Cumulative
2014	1	1.9%	1
2015	1	1.9%	2
2016	2	3.8%	4
2017	1	1.9%	5
2018	2	3.8%	7
2019	4	7.7%	11
2020	2	3.8%	13
2021	2	3.8%	15
2022	3	5.8%	18
2023	8	15.4%	26
2024	10	19.2%	36
2025	16	30.8%	52

Theme 1: The Constrained Dreamer; Aspiration amidst Systemic Deficits

This theme captures the tension between lecturers' educational aspirations for AI and the harsh realities of their workplaces. Across studies, lecturers demonstrate awareness of and enthusiasm for AI's potential to enhance efficiency, enable personalized learning, broaden access, and boost research productivity (Ashesi University, 2025; Mabanja et al., 2025). A Nigerian engineering lecturer encapsulated this aspiration: "I imagine using AI-powered simulations to teach complex engineering concepts... showing student's virtual models that we could never afford to build here physically" (Owan et al., 2023).

Table 9: Frequency of Barriers Reported in the Included Studies

Barrier Category	Number of Studies Reporting	Percentage of Studies (N=52)
Infrastructure barriers (electricity, internet, devices)	47	90.4%
Individual capacity gaps (technical skills, training)	42	80.8%
Policy/governance vacuum	40	76.9%
Institutional barriers (lack of support, no incentives)	38	73.1%
Pedagogical uncertainty (how to teach with AI)	35	67.3%
Ethical concerns (bias, privacy, integrity)	32	61.5%
Assessment crisis (academic integrity concerns)	30	57.7%
Cultural barriers (resistance to change, tradition)	25	48.1%

However, this vision confronts multi-level barriers. Infrastructure deficits were the most frequently reported obstacle (90.4% of studies), with unreliable electricity, poor internet connectivity, and inadequate devices fundamentally limiting possibilities (Khoza & van der Walt, 2025; Funda & Francke, 2024; Czerniewicz et al., 2019). Individual capacity gaps (80.8% of studies) extend beyond technical skills to pedagogical knowledge; lecturers know how to use AI tools but not how to teach with them effectively (Mah et al., 2025). Institutional barriers (73.1% of studies) include inadequate training, lack of incentives and recognition, bureaucratic obstacles, and absent strategic direction (Ashesi University, 2025). The experience of constrained agency emerges from this interplay: lecturers as willing professionals whose ability to innovate is systematically thwarted by their environments. As a South African scholar observed: "I have so many ideas for how AI could transform my teaching. But I can't implement them. The infrastructure isn't reliable. The students don't have devices. There's no support from IT. I feel like my hands are tied" (Tshabalala et al., 2022).

Theme 2: Pedagogy Adrift; Uncertainty in Uncharted Waters

Generative AI has destabilized fundamental assumptions about teaching, learning, and assessment. Lecturers face profound uncertainty about how to integrate AI into their pedagogy while maintaining academic integrity and learning quality. The assessment crisis is particularly acute: traditional take-home assignments and essays have become vulnerable to AI-generated submissions, leaving lecturers struggling to determine what constitutes valid evidence of learning (Rudolph et al., 2023; Alnsour et al., 2025).

A Ghanaian history lecturer illustrated the pedagogical void: "We had a workshop on ChatGPT. They showed us how to log in and write a prompt. But no one told me how to redesign my African History essay question so that it actually tests critical thinking and not just the AI's ability to summarise" (Mah et al., 2025).

Table 10: Assessment Concerns Reported in the Literature

Concern Type	Number of Studies Reporting	Percentage of Studies (N=52)
Academic integrity/plagiarism	38	73.1%
Uncertainty about valid assessment	32	61.5%
AI-generated submissions undetectable	28	53.8%
Need to redesign assessments	27	51.9%
Equity of access to AI tools	22	42.3%
Fairness across student populations	18	34.6%

This reflects the gap between technical training (TK) and pedagogical knowledge for AI (TPK), lecturers learn how to use tools but not how to teach with them.

Enablers helping lecturers navigate this uncertainty include peer learning communities (53.8% of studies), where lecturers share strategies and experiences (Mah et al., 2025); pedagogy-focused training (50% of studies) that addresses how to teach with AI, not just how to use it (Mah et al., 2025); supportive leadership (46.2% of studies) that provides resources and signals that innovation is valued (Ashesi University, 2025); and institutional guidance and policies (38.5% of studies) that provide frameworks for AI integration (Mabanja et al., 2025).

Table 11: Enablers of AI Adoption Reported in the Literature

Enabler Category	Number of Studies Reporting	Percentage of Studies (N=52)
Peer learning communities	28	53.8%

Pedagogy-focused training	26	50.0%
Supportive leadership	24	46.2%
Personal innovativeness	22	42.3%
Institutional guidance/policies	20	38.5%
Recognition/incentives for innovation	15	28.8%
Access to infrastructure/tools	14	26.9%

Theme 3: The Shadow of the Global North; Context, Ethics, and Autonomy

Lecturers demonstrate keen awareness of the geopolitical dimensions of AI, expressing concerns about the suitability of Global North-developed AI technologies for African educational contexts. Olojede and Olakulehin (2024) argue that Africa's engagement with AI remains "trivial" and requires a more critical, contextually-aware approach to avoid perpetuating new forms of intellectual colonialism. A Ugandan literature lecturer captured this concern: "These AIs are trained on data from America and Europe. What do they know about our realities, our histories, our ways of knowing? They will just perpetuate another form of intellectual colonialism" (Gachago et al., 2021).

Ethical concerns reported include academic integrity (73.1% of studies), algorithmic bias (65.4%), data privacy (61.5%), epistemic injustice and marginalization of local knowledge (50%), and digital colonialism/dependency (46.2%) (Mabanja et al., 2025; Mhlanga, 2023; Alnsour et al., 2025).

Table 12: Ethical Concerns Reported in the Literature

Ethical Concern	Number of Studies Reporting	Percentage of Studies (N=52)
Academic integrity	38	73.1%
Algorithmic bias	34	65.4%
Data privacy	32	61.5%
Epistemic injustice/marginalization of local knowledge	26	50.0%
Digital colonialism/dependency	24	46.2%
Lack of local language support	22	42.3%
Cultural inappropriateness	20	38.5%

Less than half of HEIs have written policies for ethical and responsible AI use, leaving lecturers to navigate these challenges without institutional support (Ashesi University, 2025).

The Ashesi University (2025) study, the most comprehensive continental assessment to date, was conducted in 2024-2025, capturing institutional responses during the first full academic years following generative AI's emergence. Its finding that less than half of HEIs have written policies for ethical and responsible AI use is therefore particularly striking: it suggests that even as AI tools proliferated rapidly across African campuses, institutional governance mechanisms lagged significantly behind. This temporal gap between technological adoption and policy development is a defining feature of the current moment and a central concern of this review.

The autonomy imperative, the desire for African academics and institutions to shape their own AI futures, manifests through calls for developing AI tools specific to African languages and contexts, adapting rather than importing existing tools, African-led policy development, and epistemic sovereignty that ensures AI complements rather than displaces African knowledge systems (Olojede & Olakulehin, 2024; Ashesi University, 2025). Exemplars like Morocco's UM6P and the University of KwaZulu-Natal demonstrate what is possible when institutions take deliberate, problem-driven, contextually-aware approaches.

Theme 4: Policy Spectatorship; Lecturers in a Governance Vacuum

The governance gap is pervasive: less than half of African HEIs have formal AI policies or ethical guidelines (Ashesi University, 2025). When policies exist, they are often reactive and restrictive rather than proactive and enabling, such as outright bans on ChatGPT without pedagogical guidance (Mabanja et al., 2025). National ICT or AI policies frequently remain high-level texts disconnected from implementation realities, lacking specific financial allocations, implementation roadmaps, and mechanisms for academic input (Czerniewicz & Trotter, 2018).

Table 13: AI Policy Status across African HEIs (Ashesi University/WISE, 2025)

Policy Status	Percentage of Institutions
Have comprehensive AI policy	40%
Have ethical guidelines for AI use	42%
Have no formal AI policy	60%
Public HEIs with AI policies	44%
Private HEIs with AI policies	36%

The Ashesi University (2025) data on AI policy status across African HEIs (Table 13) must be understood within its temporal context. Collected in 2024-2025, these figures represent a baseline against which future progress can be measured. Given the rapid pace of AI development and the growing urgency of governance concerns, it is possible, and indeed necessary, that these percentages will shift significantly in coming years. The Khoza and van der Walt (2025) systematic review, conducted contemporaneously, similarly captures a moment of transition: their identification of inadequate infrastructure, low faculty readiness, and ethical concerns as major obstacles reflects conditions that predate the full institutionalization of AI strategies. Both studies should be read as documenting a critical juncture rather than a permanent state of affairs.

Lecturers experience this as policy spectatorship, observing distant policy processes without experiencing their impact on daily realities. A Zambian science educator's observation is representative: "The ministry launches a 'Digital University' strategy with great fanfare. Meanwhile, in my department, we share one projector that overheats after 20 minutes. It's like they live in a different country" (Czerniewicz et al., 2019). Consequences of the governance vacuum include: lack of guidance on responsible and ethical AI use; inconsistent or absent institutional training and resources; innovation driven by individual initiative rather than strategic direction; and inadequately addressed risks (academic dishonesty, privacy concerns, bias).

Proactive governance exemplars demonstrate alternatives. The University of KwaZulu-Natal developed comprehensive generative AI guidelines through consultative processes, establishing four foundational principles: innovation, ethics, rigor, and capacity building (Thaldar et al., 2025). Morocco's UM6P is designing system-level solutions addressing specific pedagogical and operational challenges (Ashesi University, 2025). These exemplars share the following characteristics: consultative development involving lecturers, resource allocation for implementation, pedagogical focus, ethical guidance, and adaptive approaches that allow for experimentation and learning.

DISCUSSION

Reconceptualizing the Digital Divide

The findings necessitate reconceptualizing the digital divide in the AI era as a multi-level phenomenon. The first-order divide (infrastructure access) remains fundamental and severely limiting. However, even where infrastructure exists, second-order divides (pedagogical knowledge for AI, TPK) and third-order divides (ethical-governance frameworks for responsible, contextualized use) are equally significant.

Table 14: Orders of the Digital Divide in the AI Era

Level	Divide	Description	Evidence
First-Order	Infrastructure Divide	Access to electricity, internet, devices	Czerniewicz et al., 2019; Funda & Francke, 2024
Second-Order	Pedagogical Divide	Knowledge of how to teach with AI	Mah et al., 2025; Khoza & van der Walt, 2025
Third-Order	Ethical-Governance Divide	Frameworks for responsible, contextualized use	Ashesi University, 2025; Olojede & Olakulehin, 2024

This multi-level understanding explains why infrastructure investment alone cannot solve the problem, and why training without infrastructure is meaningless. Effective interventions must address access, capability, and governance simultaneously.

7.2 Theoretical Implications: Extending TPACK and Institutional Theory

The findings highlight the centrality of context in TPACK, supporting Mishra's (2019) emphasis on Contextual Knowledge (XK) as an overarching dimension. In African contexts, context encompasses infrastructure realities, institutional conditions (policies, support, culture), socio-cultural elements (language, values, pedagogical traditions), and historical-political dynamics (colonial legacies, global asymmetries). The TPACK-C framework, where Context conditions all TPACK domains, offers a more appropriate model for understanding AI integration in resource-constrained, post-colonial settings.

Institutional Theory illuminates the governance vacuum through concepts of decoupling—the gap between formal policies and actual practices, and isomorphic pressures leading institutions to adopt ill-suited policies to signal legitimacy to external audiences (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). However, the findings also reveal the limitations of conventional institutional theory, which can obscure lecturer agency. The "constrained dreamer" theme demonstrates that lecturers actively negotiate, navigate, and occasionally resist institutional constraints, suggesting the need for expanded theory that accounts for agency within institutional structures.

Beyond Deficit Narratives

A significant contribution of this review is challenging deficit narratives that portray African lecturers as unskilled, resistant, or technophobic. The "constrained dreamer" theme reveals professionals who are willing and ambitious, who recognize AI's potential, wish to engage, and envision better educational futures, but whose aspirations are thwarted by their environments, not by lack of will or ability. This finding aligns with broader critiques of deficit thinking in education and development (Czerniewicz, 2018; Gourlay, 2021) that locate problems in individuals rather than in the systems that constrain them. African lecturers are the solution, not the problem; the challenge is creating the infrastructure, training, support, and governance frameworks that enable them to exercise their agency effectively.

The rapid emergence of studies like Ashesi University (2025) and Khoza and van der Walt (2025), both published within a year of generative AI's widespread adoption, itself challenges deficit narratives. African scholars, institutions, and research networks demonstrated the capacity to mobilize quickly, conduct large-scale continental surveys, and synthesize evidence across diverse contexts. This scholarly responsiveness suggests that the constraints identified in this review are not attributable to a lack of academic expertise or initiative, but rather to the structural conditions within which that expertise operates.

Implications for Policy and Practice

The findings have multi-level implications. At the institutional level, universities must move from reactive, restrictive approaches to proactive, enabling governance through: comprehensive AI policies developed through consultative processes; dedicated resources for infrastructure, training, and support; pedagogy-focused professional development addressing how to teach with AI; recognition and rewards for innovative teaching; and communities of practice for peer learning and collaboration.

At the national level, governments must ensure AI plans move from rhetoric to implementation through: specific financial allocations, implementation roadmaps, channels for academic input into policymaking, support for local AI development for African languages and contexts, and national guidelines for ethical AI use in education.

At the international level, development partners must support locally-driven, contextually-aware approaches through: shifting from short-term pilots to long-term infrastructure and capacity investments; supporting South-South cooperation and knowledge exchange; funding indigenous AI research rather than promoting imported solutions; and centering African voices in global AI in education discourse.

The rapid post-2023 acceleration of AI scholarship in African higher education, evidenced by the Ashesi University (2025) continental survey and Khoza and van der Walt's (2025) systematic review, demonstrates both the urgency and the capacity within the sector. However, it also highlights a paradox: the same institutions that produced these rigorous, timely studies often lack the basic infrastructure, pedagogical training, and governance frameworks their findings recommend. This disconnect between analytical capacity and operational capacity is a central tension that the C-LEC Framework seeks to address.

CONCLUSION AND RECOMMENDATIONS

Summary of Key Findings

This narrative review synthesized research on AI and academic lecturers in higher education across developing African nations. The analysis reveals a pattern of high awareness but limited adoption, with lecturers navigating aspirations amidst systemic infrastructural deficits, pedagogical uncertainty in the face of generative AI, concerns about imported tools and epistemic justice, and a governance vacuum that leaves them without sufficient guidance or support. The findings challenge deficit narratives about African lecturers, revealing them as ambitious professionals whose agency is constrained by institutional conditions rather than individual deficiencies.

The C-LEC Framework

Based on the synthesized evidence, this review proposes the Contextually-Grounded, Lecturer-Centric (C-LEC) Framework for AI integration in African higher education.

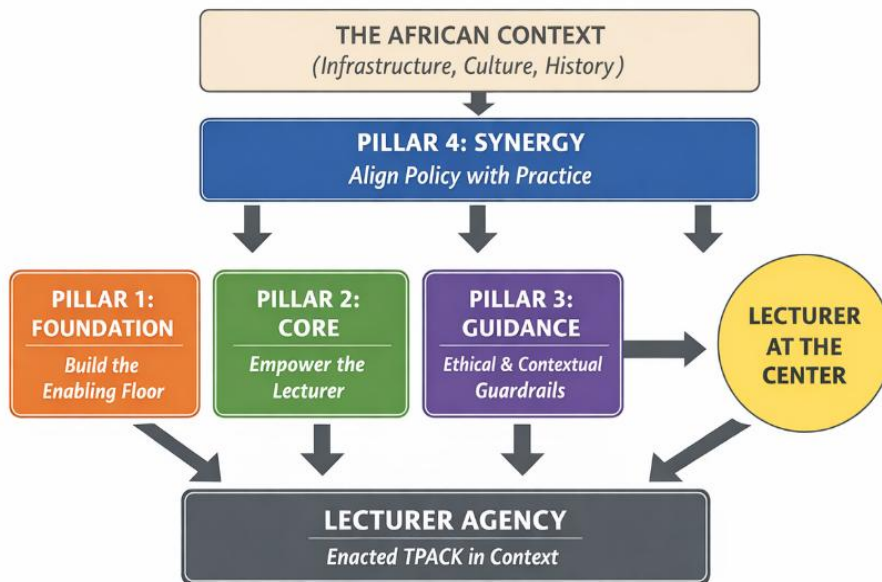


Figure 1: The C-LEC Framework

The framework comprises four interconnected pillars. To ensure practical utility for university administrators and policymakers, each pillar is accompanied by specific, actionable indicators that allow institutions to measure progress of pedagogical capacity-building against infrastructure procurement. These indicators are designed to be tracked over time in low-resource settings, with baseline assessments followed by periodic monitoring (e.g., annually or biennially).

Table 15: The C-LEC Framework (Principles and Action Areas)

Pillar	Guiding Principles	Action Areas	Measurable Indicators (for monitoring and accountability)
1. Foundation: Build the Enabling Floor	Infrastructure as a right, not a privilege; Strategic investment; Reliability over novelty	- Ensure reliable electricity and affordable, high-speed internet as non-negotiable foundations - Provide adequate devices for all academic staff - Invest in institutional AI platforms, not just individual tools - Develop technical support systems for AI use	% of academic staff with reliable access to electricity during working hours (target: 95%+) % of academic staff with adequate device access (target: 1:1 device-to-lecturer ratio) - Average internet uptime during teaching hours (target: 99%+ availability) - Ratio of technical support staff to academic staff (target: 1:50) - Annual infrastructure investment as % of institutional budget (target: 5-10%) - Time-to-resolution for AI-related technical issues (target: <24 hours)
2. Core: Empower the Lecturer	Pedagogy-first; Agency-centered; Collaborative	Shift training from "how to use AI" to	% of academic staff completing pedagogy-focused AI training annually (target: 80%+)

		"how to teach with AI". • Foster disciplinary communities of practice for peer learning. • Create time and space for experimentation and reflection. • Recognize and reward teaching innovation in promotion criteria. • Involve lecturers in designing AI strategies and policies.	• Number of active disciplinary communities of practice per faculty (target: ≥ 1 per department) • % of academic staff reporting time allocated for AI experimentation (target: 50%+). • Existence of teaching innovation criteria in promotion policies (yes/no, with % weighting). • % of academic staff involved in AI strategy/policy consultations (target: 60%+). • Pre/post training assessment of TPK (Technological Pedagogical Knowledge) gains (target: measurable improvement)
3. Guidance: Establish Ethical and Contextual Guardrails	Co-created; Contextually-attuned; Justice-oriented	• Develop ethical guidelines through inclusive processes involving lecturers. • Address context-specific concerns (language, culture, relevance). • Establish clear frameworks for academic integrity in the AI era. • Create mechanisms for ongoing ethical reflection and adaptation. • Support local AI development for African languages and contexts.	• Existence of co-created AI ethics guidelines (yes/no; date of adoption). • % of academic staff who participated in guideline development (target: 40%+). • Number of context-specific concerns addressed in guidelines (e.g., language, cultural relevance). • Existence of academic integrity framework updated for AI (yes/no; date of revision). • Frequency of ethical reflection sessions per academic year (target: ≥ 2 per faculty). • Number of local AI development initiatives supported (target: ≥ 1 per institution). • % of guidelines available in local languages (target: 100% where applicable)
4. Synergy: Align Policy with Practice	Coherence; Resourcing; Accountability	• Connect national AI strategies to institutional implementation plans.	• Existence of institutional AI implementation plan aligned with national strategy (yes/no) • Dedicated budget line for AI capacity building (% of institutional budget; target: 3-5%)

		• Allocate dedicated budgets for AI capacity building. • Create mechanisms for lecturer input into policy development. • Monitor implementation, not just policy adoption. • Foster collaboration across institutions and countries.	• Number of formal mechanisms for lecturer input into policy (target: ≥ 2, e.g., committee, survey, etc.). • Annual monitoring report on AI implementation progress (yes/no; must be publicly available). • Number of inter-institutional collaborations on AI (target: ≥ 1 per institution). • % of policy commitments with allocated resources (target: 80%+). • Time from policy adoption to implementation (target: < 12 months)
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Guidance for Implementation Tracking in Low-Resource Settings

To ensure the C-LEC Framework is actionable in contexts with limited administrative capacity, institutions are encouraged to:

1. Conduct a baseline assessment using the indicators above at the outset of any AI integration initiative.
2. Prioritize a subset of indicators (e.g., 2-3 per pillar) that align with institutional strategic goals and available data collection capacity.
3. Integrate monitoring into existing quality assurance processes rather than creating parallel bureaucratic structures.
4. Use lightweight data collection methods (e.g., annual staff surveys, simple administrative logs, focus group discussions) to track progress without overburdening staff.
5. Report progress transparently to all stakeholders, including lecturers, to maintain accountability and foster a culture of continuous improvement.
6. Review and adapt indicators periodically (e.g., every 2-3 years) as institutional capacity and AI technologies evolve.

The framework explicitly prioritizes pedagogical capacity-building before technological procurement. Indicators in Pillar 2 (Core) should be monitored with equal rigor to those in Pillar 1 (Foundation), ensuring that infrastructure investments are matched by investments in human capacity. Institutions that procure AI tools without corresponding pedagogical training and support will fail to achieve meaningful integration, regardless of the sophistication of their technological infrastructure.

RECOMMENDATIONS

For university leaders

Develop comprehensive AI policies through consultative processes; invest in foundational infrastructure; rethink professional development to emphasize pedagogy over tools; foster communities of practice; establish rewards and recognition for innovative teaching; provide clear ethical guidelines addressing context-specific concerns.

For national policymakers

Move from high-level strategy to implementable plans; invest in foundational infrastructure as public goods; support indigenous AI research and development; establish national guidelines for ethical AI use; fund research on AI in African education; foster regional cooperation networks.

For development partners

Shift from short-term pilots to long-term investments; center African priorities and voices; support South-South cooperation; invest in local AI development; support implementation research; promote contextually-sensitive approaches.

Limitations

This review has several limitations: restriction to English-language publications potentially underrepresents Francophone, Lusophone, and Arabic-speaking Africa; the rapid pace of AI development means recent advances may supersede some findings; the single-reviewer screening and analysis (though with supervisor consultation) is a methodological limitation; the heterogeneity of included studies complicates direct comparisons; and publication bias may skew findings toward positive results.

Future Research Directions

This review has several limitations that warrant explicit acknowledgment. First, and most significantly, the geographic and linguistic distribution of the included studies shows a pronounced regional skew toward Anglophone East and Southern Africa. Future research should also prioritize cross-linguistic and cross-regional studies that deliberately include Francophone, Lusophone, and Arabic-speaking African contexts. Such studies should be conducted in partnership with regional scholars and published in multiple languages to ensure broad accessibility and uptake. Additionally, empirical validation of the C-LEC Framework across diverse institutional types (e.g., large public universities, small private institutions, distance learning providers) is urgently needed to refine its indicators and implementation guidance.

Second, the rapid pace of AI development means that recent advances, particularly in generative AI, multimodal models, and localized AI applications, may supersede some findings synthesized here. The review captures literature through early 2025, but the field evolves monthly, and longitudinal tracking will be essential.

Third, the single-reviewer screening and analysis process (though conducted in consultation with the supervisor) is a methodological limitation. While PRISMA guidelines were followed and an audit trail maintained, dual independent screening would have strengthened reliability.

Fourth, the heterogeneity of included studies, spanning quantitative surveys, qualitative interviews, case studies, and theoretical papers, complicates direct comparisons and meta-analytic synthesis. The thematic approach adopted here mitigates but does not eliminate this challenge.

Fifth, publication bias may skew findings toward positive results, with unsuccessful AI initiatives, discontinued pilots, or negative experiences less likely to be published. This may overstate both the promise and the challenges of AI integration.

Finally, the C-LEC Framework proposed in this review, while grounded in the synthesized evidence, has not yet been empirically validated across diverse institutional contexts. Its four pillars represent a theoretically informed roadmap rather than a tested intervention model. Future research should pilot the framework in varied African higher education settings to assess its feasibility, refine its indicators, and document implementation lessons.

Concluding Reflections

AI's future in African higher education will be shaped by decisions made today about investment, policy, training, and governance. This review has attempted to provide an evidentiary framework for those decisions,

amplifying the voices of lecturers who will ultimately determine whether AI serves educational purposes. The destination, a higher education sector where AI empowers rather than dehumanizes, includes rather than excludes, and serves African interests rather than external agendas, is worth the journey, however long and complex.

Declarations

Competing Interests

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Memory John Banda (M.J.B.) is the sole author of this article.

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REFERENCES

1. Alnsour, M. M., et al. (2025). AI in education: Enhancing learning potential and addressing ethical considerations among academic staff—A cross-sectional study at the University of Jordan. *International Journal for Educational Integrity*, 21(1), 1-18. <https://doi.org/10.1007/s40979-025-00189-4>
2. Ashesi University. (2025). Harnessing AI for Higher Education in Africa: A Study on Adoption, Barriers, and Opportunities. WISE/The Education Collaborative.
3. Asongu, S. A., & Odhiambo, N. M. (2020). The role of ICT in the economic development of Africa: The case of mobile telephony. *Telecommunications Policy*, 44(9), 102041. <https://doi.org/10.1016/j.telpol.2020.102041>
4. Baker, R. S., & Hawn, A. (2021). Algorithmic bias in education. *International Journal of Artificial Intelligence in Education*, 32(4), 1052-1092. <https://doi.org/10.1007/s40593-021-00285-9>
5. Bond, M., et al. (2020). Digital transformation in German higher education: Student and teacher perceptions and usage of digital media. *International Journal of Educational Technology in Higher Education*, 15(1), 1-20. <https://doi.org/10.1186/s41239-018-0130-1>
6. Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., ... & Siemens, G. (2021). A meta systematic review of artificial intelligence in higher education: A call for increased ethics, collaboration, and rigour. *International Journal of Educational Technology in Higher Education*, 18(1), 1-41. <https://doi.org/10.1186/s41239-021-00287-6>
7. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
8. Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597. <https://doi.org/10.1080/2159676X.2019.1628806>
9. Chawinga, W. D., & Zozie, P. A. (2016). Increasing access to higher education through open and distance learning: Empirical findings from Mzuzu University, Malawi. *International Review of Research in Open and Distributed Learning*, 17(4), 1-20. <https://doi.org/10.19173/irrodl.v17i4.2409>
10. Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE Access*, 8, 75264-75278. <https://doi.org/10.1109/ACCESS.2020.2988510>
11. Czerniewicz, L. (2018). Inequality as higher education goes online. In *Networked learning* (pp. 95-106). Springer. https://doi.org/10.1007/978-3-319-74857-3_6

12. Czerniewicz, L., Trotter, H., & Haupt, G. (2019). Online teaching in response to student protests and campus shutdowns: Academics' perspectives. *International Journal of Educational Technology in Higher Education*, 16(1), 1-22. <https://doi.org/10.1186/s41239-019-0170-1>
13. Czerniewicz, L., & Trotter, H. (2018). A pedagogy of pastoral care for teaching in contexts of inequality. *Teaching in Higher Education*, 23(6), 723-736. <https://doi.org/10.1080/13562517.2017.1421627>
14. Deeva, G., Bogdanova, D., Serral, E., Snoeck, M., & De Weerd, J. (2021). A review of automated feedback systems for learners: Classification framework, challenges and opportunities. *Computers & Education*, 162, 104094. <https://doi.org/10.1016/j.compedu.2020.104094>
15. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160. <https://doi.org/10.2307/2095101>
16. Falebita, O. S., & Kok, P. J. (2024). Strategic goals for artificial intelligence integration among STEM academics and undergraduates in African higher education: A systematic review. *Discover Education*, 3(1). <https://doi.org/10.1007/s44217-024-00345-7>
17. Funda, V., & Francke, E. (2024). Benefits and challenges of AIOPS adoption and usage in HEIs in developing countries. *South African Journal of Higher Education*, 38(6), 56-78. <https://doi.org/10.20853/38-6-6096>
18. Gachago, D., Morkel, J., Hitge, L., van Zyl, I., & Ivala, E. (2021). Developing eLearning champions: A design thinking approach. *International Journal of Educational Technology in Higher Education*, 18(1), 1-19. <https://doi.org/10.1186/s41239-021-00298-3>
19. Gourlay, L. (2021). There is no 'virtual learning': The materiality of digital education. *Journal of New Approaches in Educational Research*, 10(1), 57-66. <https://doi.org/10.7821/naer.2021.1.649>
20. Green, B. N., Johnson, C. D., & Adams, A. (2006). Writing narrative literature reviews for peer-reviewed journals: Secrets of the trade. *Journal of Chiropractic Medicine*, 5(3), 101-117. [https://doi.org/10.1016/S0899-3467\(07\)60142-6](https://doi.org/10.1016/S0899-3467(07)60142-6)
21. Ifenthaler, D., & Yau, J. Y. K. (2020). Utilising learning analytics to support study success in higher education: A systematic review. *Educational Technology Research and Development*, 68(4), 1961-1990. <https://doi.org/10.1007/s11423-020-09761-y>
22. Kaliwo, J., & Chigona, W. (2021). Lecturers' perceptions of adopting e-learning in Malawian universities: A UTAUT perspective. *The African Journal of Information and Communication*, 27, 1-23. <https://doi.org/10.23962/10539/31374>
23. Khoza, N. G., & van der Walt, F. (2025). A systematic review on AI-enhanced pedagogies in higher education in the Global South. *Frontiers in Education*, 10, 1667884. <https://doi.org/10.3389/feduc.2025.1667884>
24. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.
25. Mabanja, A., Kaweesi, M., Nimulola, M. A., & Yassin, A. (2025). Benefits, threats, and mitigation strategies of artificial intelligence in higher education: A narrative literature review. *Uganda Higher Education Review*, 12(2), 82-97. <https://doi.org/10.58653/nche.v12i2.7>
26. Mah, D. K., et al. (2025). Perspectives of academic staff on artificial intelligence in higher education: Exploring areas of relevance. *Frontiers in Education*, 10, 1484904. <https://doi.org/10.3389/feduc.2025.1484904>
27. Mashile, E. O. (2020). The Africanisation of e-learning: A critical discourse analysis. *South African Journal of Higher Education*, 34(2), 223-239. <https://doi.org/10.20853/34-2-3525>
28. McCowan, T. (2019). *Higher education for and beyond the Sustainable Development Goals*. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-19597-7>
29. Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340-363. <https://doi.org/10.1086/226550>
30. Mhlanga, D. (2023). The role of artificial intelligence and machine learning in the education sector: Benefits, challenges, and future prospects. *Social Sciences & Humanities Open*, 8(1), 100525. <https://doi.org/10.1016/j.ssaho.2023.100525>
31. Mishra, P. (2019). Considering contextual knowledge: The TPACK diagram gets an upgrade. *Journal of Digital Learning in Teacher Education*, 35(2), 76-78. <https://doi.org/10.1080/21532974.2019.1588611>

32. Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
33. Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York University Press. <https://doi.org/10.18574/nyu/9781479833641.001.0001>
34. Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1-13. <https://doi.org/10.1177/1609406917733847>
35. Olojede, H. T., & Olakulehin, F. K. (2024). Africa dreams of artificial intelligence: A critical analysis of its limits in open and distance learning. *Journal of Ethics in Higher Education*, 5, 159-181. <https://doi.org/10.26034/fr.jehe.2024.6869>
36. Owan, V. J., Abang, K. B., Idika, D. O., Etta, E. O., & Bassey, B. A. (2023). Exploring the potential of artificial intelligence in higher education: A case study of lecturers' perceptions in Nigeria. *Journal of Applied Learning & Teaching*, 6(1). <https://doi.org/10.37074/jalt.2023.6.1.3>
37. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
38. Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning & Teaching*, 6(1). <https://doi.org/10.37074/jalt.2023.6.1.9>
39. Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). Sage. <https://doi.org/10.4135/9781473957954>
40. Selwyn, N. (2022). *Education and technology: Key issues and debates* (4th ed.). Bloomsbury. <https://doi.org/10.5040/9781350145576>
41. Siemens, G., & Long, P. (2011). Penetrating the fog: Analytics in learning and education. *EDUCAUSE Review*, 46(5), 30-40.
42. Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333-339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
43. Thaldar, D., Botes, M., Badru, A., et al. (2025). Developing generative AI guidelines for higher education: A case study from the University of KwaZulu-Natal. *South African Journal of Higher Education*.
44. Tshabalala, M., Ndeya-Ndereya, C., & van der Merwe, T. (2022). Implementing blended learning at a developing university: Obstacles and opportunities. *South African Journal of Higher Education*, 36(1), 214-231. <https://doi.org/10.20853/36-1-4597>
45. van Deursen, A. J., & van Dijk, J. A. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society*, 21(2), 354-375. <https://doi.org/10.1177/1461444818797082>
46. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1-27. <https://doi.org/10.1186/s41239-019-0171-0>