Re-thinking Technology-Mediated Learning in Ugandan Universities: A Narrative Review of Policy and Practice

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Abstract: *Technology-mediated learning (TML) has become central to higher education globally, particularly as universities respond to massification, digitalisation, and post-COVID-19 disruptions. In Uganda, national ICT and education policies since 2003 have promoted the integration of digital technologies in universities; however, concerns persist regarding the extent to which these policies support pedagogically meaningful learning rather than technological access alone. This study adopted a narrative review design to synthesise policy and scholarly literature published between 2003 and 2025 on technology-mediated learning in Ugandan universities. Sources included national policy documents, peer-reviewed journal articles, and credible institutional reports. Literature was identified using Boolean search strategies across academic databases and official repositories. Thematic synthesis was guided by a socio-ecological framework and organised in a manner that progressed from global and Sub-Saharan African perspectives to national and Southwestern Uganda contexts. The review found that technology-mediated learning in Ugandan universities has largely been framed through technocratic policy orientations emphasising infrastructure, access, and continuity. While universities have widely adopted learning management systems and online platforms, implementation has often prioritised content delivery and administrative efficiency over pedagogical redesign. Significant policy–practice gaps persist, shaped by institutional capacity, academic staff preparedness, digital inequities, and limited pedagogy-explicit guidance, particularly evident during the COVID-19 period. The findings indicate that re-thinking technology-mediated learning in Ugandan universities requires shifting from technology-centred policies toward pedagogically grounded, context-responsive approaches*. *Coordinated action across policy, institutional, and teaching levels is essential to enhance learning mediation, equity, and sustainability in digital higher education*.

Keywords: *Technology-mediated learning, Higher education, Digital pedagogy, Higher education policy, Uganda*

1. Introduction

Technology-mediated learning (TML) has become a central feature of contemporary higher education, reshaping how teaching and learning are organized, delivered, and experienced. Globally, universities increasingly rely on digital platforms, learning management systems, and online communication tools to support instructional processes, driven by the massification of higher education, globalisation of knowledge, and rapid technological advancement. Within this context, technology no longer functions merely as a channel for content delivery but actively mediates interaction, meaning-making, and pedagogical relationships between

students, instructors, and institutions (Kirkwood & Price, 2014; Laurillard, 2013; Morris, 2012).

In Uganda, the policy foundations for technology-mediated learning in higher education can be traced to the National ICT Policy Framework of 2003, which marked the first formal recognition of information and communication technologies as strategic instruments for national development, including education (Ministry of Works Housing and Communications, 2003). Although the policy did not explicitly articulate pedagogical models for universities, it provided the initial policy legitimacy for ICT integration within higher education institutions. This policy laid the groundwork for early investments in computer laboratories, internet connectivity, and digital information systems across public and private universities.

Subsequent policy developments reinforced this trajectory. The National ICT Policy (2014) emphasised digital access, capacity building, and innovation as mechanisms for improving efficiency and quality across sectors, including education (Ministry of ICT, 2014). In parallel, successive Education Sector Strategic Plans, particularly the 2017–2022 framework, encouraged universities to adopt e-learning systems, digital libraries, and blended learning approaches to expand access and enhance institutional performance (Ministry of Education and Sports, 2017). Collectively, these policy instruments positioned technology as a key enabler of higher education reform, while leaving considerable discretion to institutions regarding pedagogical implementation.

Theoretically, technology-mediated learning is best understood through a socio-cultural perspective of learning, which conceptualises learning as a socially situated process mediated by tools, symbols, and interaction within specific institutional and cultural contexts. From this perspective, digital technologies function as mediational tools that shape how learners engage with knowledge, peers, and instructors, rather than neutral instruments for content transmission (Vygotsky, 1978). In higher education, this lens highlights the importance of examining how institutional policies, academic norms, and resource conditions shape the pedagogical use of technology. In the Ugandan university context, a socio-cultural perspective shifts attention from questions of technological availability to questions of how learning is mediated through digitally supported practices.

Complementing this view, connectivist theory provides additional insight into learning within digitally networked environments (Siemens, 2004). Connectivism conceptualises learning as the ability to form and navigate connections among information sources, technological systems, and social networks (Stephen, 2012). This perspective is particularly relevant to contemporary university learning environments characterised by online platforms, social media, and distributed knowledge systems. Within Ugandan universities, connectivism helps explain the growing reliance on learning management systems, online discussion forums, and collaborative digital tools, while also drawing attention to challenges related to uneven access, digital literacy, and meaningful participation (Nabushawo et al., 2016).

Despite supportive policy frameworks and strong theoretical foundations, empirical studies published between 2010 and 2019 suggest that the implementation of technology-mediated learning in Ugandan universities largely emphasized administrative efficiency and content dissemination rather than pedagogical transformation. Digital technologies were commonly used for uploading lecture materials, managing examinations, and supporting institutional administration, with limited redesign of teaching strategies, assessment practices, or student engagement models (Mugimu, 2021; Ndidde, Lubega, Babikwa, & Baguma, 2009). As a result, technology-mediated learning often replicated traditional instructor-centered pedagogies in digital form, reflecting a broader policy orientation toward infrastructure and access rather than instructional innovation.

The COVID-19 pandemic (2020–2022) represented a critical acceleration point in the adoption of technology-mediated learning in Ugandan higher education. Universities were compelled to transition rapidly to online and blended learning modalities to sustain academic continuity amid campus closures (Tumwesige, 2020). While this period normalised the use of digital platforms and expanded institutional acceptance of online teaching, it also exposed long-standing challenges related to staff preparedness, instructional design, assessment integrity, and digital inequities among students (Tweheyo & Mugarura, 2021). Post-pandemic studies indicate that although technology-mediated learning has become more institutionally embedded, its pedagogical potential remains unevenly realised across universities (Kabarungi, Richard, Ejiri, & Simon, 2025).

Contextually, Ugandan universities operate in environments characterised by expanding enrolments, constrained infrastructure, limited professional development opportunities for academic staff, and persistent socioeconomic disparities that affect students' access to digital resources. These conditions significantly shape how technology-mediated learning is interpreted and enacted in practice, often resulting in pragmatic, technology-driven responses rather than theoretically grounded pedagogical innovation (Amadhila, 2021). Consequently, concerns have emerged that existing policy frameworks prioritise the presence and continuity of

technology over the meaningful mediation of learning processes.

Taken together, literature published between 2003 and 2025 reveals a persistent tension between policy ambitions, theoretical possibilities, and institutional practice in the implementation of technology-mediated learning in Ugandan universities. While national policies and global learning theories emphasise the transformative potential of digital technologies, practical implementation has frequently lagged behind pedagogical expectations. This background underscores the need to rethink technology-mediated learning through a critical synthesis of policy and practice, providing a foundation for examining how digital technologies can more effectively mediate teaching and learning in Ugandan higher education. This narrative review synthesises literature from 2003 to 2025 to examine policy and practice shaping technology-mediated learning in Ugandan universities, identifying gaps to inform pedagogically grounded reforms.

1.1 Problem Statement

Technology-mediated learning has become a defining feature of contemporary higher education globally, reshaping teaching, learning, and institutional organisation (Laurillard, 2013);(Kirkwood & Price, 2014). In Uganda, national ICT and education policies introduced since 2003 have consistently promoted the integration of digital technologies in universities, positioning technology as a strategic instrument for expanding access, improving efficiency, and ensuring continuity of learning (Ministry of Works, Housing and Communications, 2003; Ministry of ICT, 2014; Ministry of Education and Sports, 2017). As a result, universities have increasingly adopted learning management systems, online platforms, and blended learning approaches, particularly during the COVID-19 pandemic (Tumwesige, 2020).

Despite these policy commitments and technological investments, concerns persist regarding the pedagogical effectiveness of technology-mediated learning in Ugandan universities. Empirical studies indicate that institutional implementation has largely prioritised content dissemination, administrative efficiency, and examination management, with limited emphasis on interactive learning design, formative assessment, and student engagement (Mugimu, 2021; Namazzi & Ssempala, 2024). Consequently, technology-mediated learning often reproduces traditional teacher-centred pedagogies in digital form rather than transforming learning practices.

These challenges are further intensified by uneven institutional capacity, limited academic staff preparedness for digital pedagogy, and persistent digital inequalities affecting students' access and participation (Nabushawo et al., 2016). Evidence from the COVID-19 period revealed significant gaps between policy intentions and teaching realities, raising concerns about learning quality and equity (Kabarungi et al., 2025; Tweheyo & Mugarura, 2021). Without a pedagogically grounded orientation, technology-mediated learning risks reinforcing superficial digital adoption rather than enhancing meaningful learning outcomes.

1.2 Objectives

This study was guided by the following objectives:

1. To examine how technology-mediated learning has been framed within higher education policy in Uganda since the introduction of national ICT reforms.
2. To analyse how Ugandan universities have interpreted and implemented technology-mediated learning in institutional and pedagogical practice over time.
3. To identify policy–practice gaps in technology-mediated learning within Ugandan universities and examine their implications for pedagogical quality and equity.

2. Literature Review

2.1 Policy Framing of Technology-Mediated Learning in Ugandan Higher Education

Globally, higher education policy increasingly frames technology-mediated learning as a strategic response to challenges related to quality, access, and system resilience. International policy discourse emphasises continuity of learning, institutional readiness, and digital governance as core priorities for universities (Carney, 2022). Since the early 2000s, global frameworks have promoted e-learning, open education, and blended learning as mechanisms to expand participation and enhance instructional flexibility (OECD, 2019; World Bank, 2002). These policy narratives conceptualise technology as a mediator of interaction, assessment, and learner support rather than merely as a delivery channel (Laurillard, 2013). Consequently, global policy discourse increasingly links digital adoption to teaching quality, learning design, and institutional transformation (Kirkwood & Price, 2014) .

Across Sub-Saharan Africa, higher education policy similarly promotes technology-mediated learning, but with a stronger emphasis on expanding access and improving system efficiency. Regional analyses indicate that policy

priorities are shaped by infrastructure constraints, affordability challenges, and uneven academic staff capacity (World Bank Group, 2017). As a result, ICT policies often prioritise connectivity, platforms, and enrolment growth, while pedagogical guidance remains limited or implicit (Tømte, Fossland, Aamodt, & Degn, 2019). This regional framing frequently leaves universities to independently interpret how technology should mediate learning processes. Such policy orientations provide an important comparative lens for understanding Uganda's trajectory in higher education digital policy (Trucano, 2016).

In Uganda, the National ICT Policy Framework (2003) marked the first formal policy commitment to integrating ICT across education systems (Ministry of Works, Housing and Communications, 2003). The National ICT Policy (2014) reinforced this commitment by emphasising access, innovation, and coordination to support national development goals (Ministry of ICT, 2014). Subsequent education sector policies encouraged distance education and e-learning in post-secondary institutions but provided limited pedagogical guidance for universities (Ministry of Education and Sports, 2017). More recently, the Education Digital Agenda Strategy 2021–2025 articulated clearer digital learning ambitions, though university-level implementation guidance remains uneven (Ministry of Education and Sports, 2021). In Southwestern Uganda, universities interpret these national policies within resource-constrained contexts, shaping localised approaches to technology-mediated learning.

2.2 Institutional Interpretation and Implementation of Technology-Mediated Learning in Ugandan Universities

Globally, universities implement technology-mediated learning through learning management systems, hybrid teaching models, and digitally supported student services. Evidence indicates that successful implementation depends on leadership commitment, instructional design capacity, and continuous academic staff development (Laurillard, 2013); OECD, 2019). Institutions that align technology adoption with pedagogical redesign demonstrate stronger student engagement and learning outcomes (Kirkwood & Price, 2014). Conversely, universities that treat technology as an add-on often replicate traditional lecture practices in digital formats. These global implementation patterns underscore the importance of institutional interpretation in shaping learning mediation.

Within Sub-Saharan African universities, implementation of technology-mediated learning often reflects pragmatic responses to contextual constraints. Studies show that blended and online learning models are adopted unevenly due to funding limitations, unreliable connectivity, and insufficient instructional support (World Bank Group, 2017). External donor support and partnerships sometimes accelerate adoption, but sustainability remains a challenge once project funding ends (Trucano, 2016). Academic staff preparedness and access to professional development consistently emerge as limiting factors (Tømte et al., 2019). These regional experiences frame how Ugandan universities operationalize national digital learning policies.

In Uganda, institutional studies indicate that universities have adopted learning management systems and online platforms to support teaching continuity and administrative efficiency (Nabushawo et al., 2016; Mugimu, 2021). However, usage patterns often emphasize content upload and examination management rather than interactive learning design (Namazzi & Ssempala, 2024).University strategic plans increasingly reference digitalisation, signalling institutional commitment to technology-mediated learning (Makerere University, 2020). In Southwestern Uganda, evidence from Mbarara University of Science and Technology shows positive perceptions of e-learning alongside challenges related to training, connectivity, and student access (Kabarungi, Richard, Ejiri, & Simon, 2025) These findings highlight variability in institutional readiness and pedagogical integration across universities.

2.3 Policy–Practice Gaps and Pedagogical Implications of Technology-Mediated Learning

Globally, scholarships caution that technology adoption alone does not guarantee pedagogical transformation in higher education. Research consistently shows that digital tools improve learning only when aligned with interaction, feedback, and learner-centred instructional design (Carney, 2022; Laurillard, 2013). Where policy emphasises access without pedagogy, universities risk digitising lectures without enhancing learning quality (Kirkwood & Price, 2014). Global evidence, therefore, stresses the need for policy frameworks that explicitly address learning mediation, assessment practices, and academic roles. These insights provide a benchmark for evaluating policy–practice alignment in lower-resource contexts.

Across Sub-Saharan Africa, policy–practice gaps are exacerbated by digital divides that affect student participation and engagement. Limited device access, high data costs, and unstable electricity constrain interactive and collaborative learning approaches (World Bank Group, 2017). During periods of rapid transition, such as crises,

universities often prioritise continuity over pedagogical quality (Carney, 2022). These constraints frequently lead to low-interaction teaching models that undermine formative feedback and learner agency. Regional literature thus emphasises the pedagogical risks of technocratic policy orientations.

In Uganda, studies conducted during and after the COVID-19 period document significant gaps between policy intentions and teaching real (Tumwesige, 2020; Tweheyo & Mugarura, 2021). Challenges related to access, staff preparedness, and assessment integrity affected both equity and learning quality (Carney, 2022). University-level research indicates that the acceptance and effective use of technology depend on institutional support, usability, and students' socioeconomic conditions (Twinamasiko et al., 2021). In Southwestern Uganda, empirical evidence highlights both benefits and persistent constraints in the implementation of e-learning (Kabarungi, Richard, Ejiri, & Simon, 2025). These patterns reinforce the need to rethink technology-mediated learning through pedagogically grounded and context-responsive policy frameworks.

3. Methodology

3.1 Study Design

This study adopted a narrative review design to critically synthesize policy and scholarly literature on technology-mediated learning in Ugandan universities. A narrative review was considered appropriate because it allows for an interpretive, theory-informed examination of diverse sources, including policy documents, empirical studies, and conceptual literature, rather than a narrow focus on effect measurement. The design supports the integration of historical, theoretical, and contextual perspectives, which is central to understanding how technology-mediated learning has evolved within higher education systems. The review was bounded to the period 2003–2025 to capture the full trajectory of policy development and institutional practice from the introduction of Uganda's first national ICT policy to post-pandemic higher education digitalization. The study was guided by narrative review questions focusing on policy framing, institutional implementation, and policy–practice gaps with pedagogical implications.

3.2 Data Sources and Search Strategy

Data for this narrative review were drawn from national and sectoral policy documents, peer-reviewed scholarly literature, and credible institutional and development partner reports relevant to technology-mediated learning in higher education. Scholarly sources were identified through systematic searches of widely used academic databases and search engines for education research, including Google Scholar and ERIC, as well as publisher platforms that host higher education journals. Policy documents were identified through targeted searches of official government and institutional websites, as well as repositories in the education and ICT sectors and university digital libraries.

The search strategy employed Boolean operators to combine key concepts related to technology-mediated learning, higher education, and geographic context. Core search strings combined synonymous terms using the operator OR and linked them to higher education descriptors using AND, for example: ("technology-mediated learning" OR "technology enabled learning" OR "digital learning" OR "e-learning" OR "online learning" OR "blended learning" OR "learning management system" OR LMS) AND ("higher education" OR university OR universities OR tertiary education). To capture policy-oriented literature, this string was refined by adding (policy OR strategy OR framework OR governance). Geographic relevance was ensured by incrementally applying location identifiers using AND, beginning with ("Sub-Saharan Africa" OR Africa) and then narrowing to Uganda, and where necessary ("Southwestern Uganda" OR "Western Uganda" OR Mbarara OR Kabale). Additional refinement focused on pedagogical dimensions through the inclusion of (pedagogy OR teaching OR learning OR assessment OR interaction). All searches were limited to English-language publications produced between 2003 and 2025, and Boolean strings were iteratively refined during the search process to maximise relevance while minimising the retrieval of non-higher-education or purely administrative ICT literature.

3.3 Eligibility Criteria

Eligibility criteria were applied to ensure that included sources were relevant to the review questions and conceptually aligned with technology-mediated learning in higher education. Sources were included if they addressed the use, governance, or pedagogical implications of digital technologies in university teaching and learning, or if they provided policy guidance directly relevant to higher education digitalisation. Literature focusing on Uganda was prioritised, while regional and global studies were included where they offered analytical value for understanding the Ugandan context. Sources were excluded if they focused exclusively on primary or secondary education without relevance to universities, addressing ICT solely as an administrative tool without connection to learning processes, or lacked sufficient methodological or conceptual clarity to support interpretation.

Screening was conducted in two stages. Initial screening involved reviewing titles, abstracts, or executive summaries to assess relevance to technology-mediated learning in higher education. Full texts were subsequently reviewed to confirm alignment with the study scope and the narrative review questions. Where evidence specific to Southwestern Uganda was limited, broader Uganda-wide university studies were included and interpreted with sensitivity to regional context.

3.4 Ethical Considerations

This study relied exclusively on publicly available secondary sources and did not involve human participants, primary data collection, or access to confidential information. As such, formal ethical approval was not required. Ethical rigour was nonetheless maintained through accurate citation, faithful representation of original authors' arguments, and avoidance of plagiarism. Policy documents and institutional reports were treated as authoritative texts and cited accordingly, while interpretations were clearly distinguished from original findings to maintain scholarly integrity.

3.5 Data Analysis and Synthesis

Data analysis followed a thematic synthesis approach appropriate for narrative reviews. Full texts of included sources were read repeatedly to identify recurring concepts, patterns, and tensions related to policy framing, institutional practice, and pedagogical mediation of learning. The synthesis aimed to move beyond descriptive reporting by comparing perspectives across sources and identifying explanatory relationships between policy intentions and observed practices.

The final synthesis was structured around three major themes aligned with the narrative review questions: the policy framing of technology-mediated learning; institutional interpretation and implementation in universities; and policy–practice gaps with pedagogical implications. Each theme was developed through an integrative interpretation of multiple sources to generate coherent insights relevant to policy and practice in higher education.

4. Results and Discussion

4.1 Policy Framing of Technology-Mediated Learning in Ugandan Universities

This review reveals that technology-mediated learning in Ugandan universities has been predominantly framed through policy lenses emphasizing access, infrastructure, and system efficiency, rather than pedagogical transformation. Globally, higher education policies increasingly conceptualize digital technologies as mediators of learning interaction, assessment, and learner support, aligning technology adoption with teaching quality and learning design (Laurillard, 2013); (Carney, 2022; Kirkwood & Price, 2014). However, Sub-Saharan African policy frameworks often prioritize connectivity, enrolment expansion, and institutional efficiency due to persistent resource constraints, leaving pedagogical guidance implicit (World Bank Group, 2017;(Tømte et al., 2019). This pattern is consistent with Uganda's trajectory in higher education policy.

At the national level, Uganda's National ICT Policy Framework (2003) and National ICT Policy (2014) established a strong foundation for ICT integration across education systems but remained largely technology-centric in orientation (Ministry of Works, Housing and Communications, 2003; Ministry of ICT, 2014). Subsequent education sector strategies promoted e-learning and distance education in universities but offered limited articulation of how technology should mediate learning processes, academic interaction, or assessment practices (Ministry of Education and Sports, 2017). As a result, universities were granted broad discretion in interpreting policy intentions, resulting in varied institutional responses.

In Southwestern Uganda, policy interpretation is further shaped by contextual realities, including constrained infrastructure, uneven connectivity, and limited academic development resources. Evidence from universities in the region indicates that national policy ambitions are often translated pragmatically, prioritizing continuity and administrative functionality over pedagogical innovation (Kabarungi, Richard, Ejiri, & Simon, 2025) This finding aligns with broader regional evidence suggesting that policy frameworks emphasising technological provision without pedagogical clarity risk reinforcing traditional teaching models in digital form (Carney, 2022). Consequently, the review demonstrates that while Uganda's policy environment has enabled digital adoption, it has insufficiently guided learning mediation within universities.

4.2 Institutional Interpretation and Implementation of Technology-Mediated Learning

The findings indicate that universities play a decisive role in shaping how technology-mediated learning is enacted,

often mediating policy intentions through institutional culture, leadership priorities, and staff capacity. Globally, universities that align technology adoption with instructional design and professional development report stronger student engagement and more meaningful learning experiences (Laurillard, 2013); OECD, 2019). In contrast, institutions that treat technology as an add-on tend to replicate lecture-based pedagogies in online environments, limiting the transformative potential of digital tools (Kirkwood & Price, 2014).

Across Sub-Saharan Africa, institutional implementation of technology-mediated learning frequently reflects pragmatic responses to resource constraints, including unreliable connectivity, limited funding, and uneven academic staff preparedness (World Bank Group, 2017). External donor partnerships and project-based interventions have accelerated platform adoption in some contexts, but sustainability challenges persist once funding cycles end (Trucano, 2016). These regional dynamics frame how Ugandan universities operationalise national digital learning policies.

In Uganda, university-level studies indicate widespread adoption of learning management systems and online platforms, particularly for content dissemination and examination management (Mugimu, 2021; Nabushawo, Aguti, & Oonyu, 2016). However, the literature consistently reports limited use of these technologies for interactive learning, collaborative knowledge construction, or formative assessment (Bahati, 2019). Institutional strategic plans increasingly reference digitalisation as a priority, signalling commitment, yet implementation remains uneven across universities (Kamya, 2022). In Southwestern Uganda, evidence from Mbarara University of Science and Technology indicates positive perceptions of e-learning, alongside persistent challenges in staff training, student access, and instructional design support (Kabarungi, Richard, Ejiri, & Simon, 2025) Collectively, these findings suggest that institutional readiness, rather than policy availability alone, strongly determines how technology mediates learning in practice.

4.3 Policy–Practice Gaps and Pedagogical Implications

A central finding of this review is the persistent gap between policy intentions and pedagogical realities in technology-mediated learning within Ugandan universities. Globally, research emphasises that digital technologies enhance learning only when intentionally aligned with interaction, feedback, and learner-centred pedagogical design (Laurillard, 2013). Policies that focus primarily on access risk producing digitally enabled

versions of traditional lectures without improving learning quality or student engagement (Kirkwood & Price, 2014).

In Sub-Saharan Africa, these gaps are intensified by digital divides that limit students' ability to participate meaningfully in online and blended learning environments (World Bank Group, 2017). High data costs, limited device access, and unstable power supply constrain collaborative learning and timely feedback, particularly during periods of rapid transition such as the COVID-19 pandemic (Ndibalema, 2022). Regional evidence shows that institutions often prioritize continuity of instruction over pedagogical depth during crises, reinforcing low-interaction teaching models.

Ugandan studies conducted during and after the COVID-19 period highlight similar patterns, with challenges related to access, academic staff preparedness, and assessment integrity affecting both equity and learning quality (Tumwesige, 2020; Tweheyo & Mugarura, 2021). Research further indicates that acceptance and effective use of technology depend on institutional support structures, platform usability, and students' socio-economic conditions (Twinamasiko et al., 2021). In Southwestern Uganda, empirical evidence reflects both the benefits of expanded digital access and the persistence of structural and pedagogical constraints (Kabarungi, Richard, Ejiri, & Simon, 2025) These findings underscore the need to rethink technology-mediated learning beyond technological provision toward pedagogically grounded, context-responsive policy and institutional strategies.

The synthesis suggests that re-thinking technology-mediated learning in Ugandan universities requires a shift from technocratic policy orientations toward pedagogy-explicit frameworks that articulate how digital technologies should mediate learning processes. Institutional investment in academic staff development, instructional design support, and equitable student access emerges as critical for realising the pedagogical potential of technology. However, this review is limited by its reliance on available published literature, which remains uneven across regions and institutions, particularly within Southwestern Uganda. Future research should examine longitudinal, institution-specific analyses of technology-mediated pedagogy in universities, with attention to disciplinary variation and students' learning experiences. Comparative studies across Ugandan regions could further illuminate contextual enablers and constraints, supporting more nuanced policy and institutional responses.

5. Conclusions and Recommendations

5.1 Conclusions

This narrative review demonstrates that technology-mediated learning in Ugandan universities has evolved within a supportive but predominantly technocratic policy environment, emphasizing access, infrastructure, and continuity rather than pedagogical mediation of learning. While national ICT and education policies since 2003 have enabled widespread digital adoption, they have offered limited guidance on how technology should transform teaching, learning interactions, assessment, and student engagement. As a result, universities have largely implemented technology-mediated learning pragmatically, often replicating traditional instructional practices in digital formats.

The review further reveals that institutional capacity, academic staff preparedness, and contextual constraints strongly shape how technology mediates learning in practice. Persistent policy–practice gaps, exacerbated during the COVID-19 period, highlight the need to rethink technology-mediated learning as a pedagogical and social process, rather than a purely technical intervention. Addressing these gaps requires coordinated action across multiple levels of the higher education ecosystem, consistent with a socio-ecological understanding of learning systems.

5.2 Recommendations

The following recommendations address multi-level policy, institutional, and pedagogical gaps shaping technology-mediated learning in Ugandan universities.

1. The Ministry responsible for education and ICT should revise higher education digital learning policies to explicitly articulate pedagogical standards for technology-mediated learning, including expectations for interaction, assessment, feedback, and learner engagement in university teaching.
2. Higher education regulators and sector agencies should develop national guidelines and quality assurance indicators for technology-mediated learning to support consistent implementation across public and private universities.
3. University councils and management should embed technology-mediated learning within institutional teaching and learning strategies by investing in instructional design units, continuous academic staff development, and pedagogically informed digital leadership.
4. Universities should strengthen professional development programmes to equip academic staff with digital pedagogical competencies, emphasising learner-centred design, interactive teaching approaches, and formative assessment in technology-mediated environments.
5. Universities should adopt inclusive digital learning support mechanisms that address student access, digital literacy, and socio-economic constraints, particularly for students in resource-constrained regions such as Southwestern Uganda.
6. Researchers and academic institutions should prioritize longitudinal and context-specific studies examining how technology mediates learning processes across disciplines and regions, to inform evidence-based policy refinement and institutional practice.

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