
**ARTIFICIAL INTELLIGENCE IN SRI LANKAN HIGHER
EDUCATION: STRATEGIC PATHWAYS EMERGING FROM POST-
PANDEMIC DIGITAL TRANSFORMATION**

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ABSTRACT

The COVID-19 pandemic accelerated digital transformation in higher education worldwide, compelling institutions to adopt emergency remote teaching practices (Dhawan, 2020). In Sri Lanka, this rapid transition exposed both institutional adaptability and structural vulnerabilities, creating a strategic opportunity to explore the integration of Artificial Intelligence (AI). Global scholarship highlights AI's transformative potential in personalization, predictive analytics, automated assessment, and administrative efficiency (Zawacki-Richter et al., 2019; Holmes et al., 2019; Luckin et al., 2016). However, AI integration in Sri Lanka remains largely exploratory and lacks structured governance. This qualitative study investigates how lessons from pandemic-driven digital transformation can inform ethical and strategic AI adoption in Sri Lankan higher education. Inductive thematic analysis revealed growing acceptance of technology-enhanced learning and emerging

engagement with generative AI tools. Nevertheless, persistent barriers remain, including infrastructural inequities, digital literacy gaps, absence of institutional AI policies, and concerns regarding academic integrity and data governance (UNESCO, 2021, 2023; Selwyn, 2019). The study concludes that sustainable AI integration requires capacity development, inclusive institutional strategy, and governance frameworks aligned with global ethical standards.

KEYWORDS: Artificial Intelligence (AI); Higher Education; Digital Transformation; Blended Learning; Sri Lanka; Educational Technology; Post-Pandemic Education; Ethics.

INTRODUCTION

Digital integration in higher education has evolved progressively over the past two decades. However, the COVID-19 pandemic triggered an unprecedented global shift toward emergency remote teaching (Dhawan, 2020). Comparative international studies document how higher education institutions in 20 countries enacted diverse responses to the COVID-19 disruption, including extensive transitions to online and digital forms of teaching and learning (Crawford et al., 2020).

In Sri Lanka, higher education institutions rapidly transitioned to online and blended teaching during the COVID-19 pandemic, with widespread use of learning management systems (e.g., Moodle), video conferencing tools (e.g., Zoom), and mobile-based communication applications such as WhatsApp and Viber to sustain academic continuity amid campus closures. (Subashini et al., 2022). Prior local research indicates moderate student readiness for online learning (Akuratiya, D. & Meddage N., 2021), suggesting foundational digital adaptability despite persistent infrastructural disparities.

The effective design of digital learning environments is underpinned by human-computer interaction (HCI) principles that shape user engagement, accessibility, and pedagogical outcomes. Silva (2016) provides a foundational Sri Lankan contribution to this discourse, examining how enabling technologies in HCI facilitate student-centered eLearning environments. This work established early conceptual grounding for learner-centric digital education in the local context, predating the large-scale digital transition triggered by the pandemic.

Globally, Artificial Intelligence has emerged as a transformative force in higher education. AI

applications support adaptive learning environments, predictive analytics for student retention, automated grading systems, and intelligent tutoring systems (Zawacki-Richter et al., 2019; Holmes et al., 2019). Foundational frameworks further argue that AI can augment not replace human educators when implemented responsibly (Luckin et al., 2016). However, critical scholars caution against techno-deterministic approaches, emphasizing ethical risks, surveillance concerns, and power imbalances embedded in AI systems (Selwyn, 2019).

More recently, generative AI technologies such as large language models have expanded possibilities for content creation, feedback generation, and academic support. UNESCO (2023) underscores the urgent need for regulatory clarity and institutional governance in response to generative AI's rapid diffusion. Earlier policy guidance from UNESCO (2021) emphasizes inclusivity, human-centered design, transparency, and data protection as foundational principles for AI in education.

Despite these global developments, AI adoption in Sri Lankan higher education remains nascent and largely unregulated. The pandemic-induced digital transformation presents a critical inflection point: institutions now possess baseline digital familiarity but lack structured AI strategies aligned with ethical and policy frameworks.

Research Objectives

This study aims to:

1. Examine how pandemic-driven digital transformation has influenced academic staff perceptions of AI in higher education.
2. Identify systemic, infrastructural, and ethical barriers to AI integration.
3. Propose contextually grounded strategic pathways for ethical and sustainable AI adoption in Sri Lanka.

By situating Sri Lanka's experience within global AI-in-education discourse, this study addresses a significant contextual research gap.

MATERIALS AND METHODS

This study employed a qualitative research design to explore perceptions and experiences of AI integration in Sri Lankan higher education. Qualitative methodology was appropriate given the exploratory nature of the research and the need to capture contextual nuance and participant meaning-making (Merriam & Tisdell, 2016).

1.1 Participants and Sampling

Participants were recruited using purposive sampling to ensure representation from individuals with direct experience in pandemic-era digital transition and current engagement with educational technology (Patton, 2015). The sample comprised 18 academics and 6 administrators from four public universities in Sri Lanka, representing diverse disciplinary backgrounds and institutional roles.

1.2 Data Collection and Analysis

Semi-structured interviews were conducted virtually between March and June 2024, each lasting 45–75 minutes. Interview protocols explored participants' experiences of pandemic digital transition, current technology use, awareness and experimentation with AI tools, and perceptions of opportunities, barriers, and governance needs.

Data analysis followed Braun and Clarke's (2006) six-phase approach to inductive thematic analysis: familiarization, initial coding, theme generation, theme review, theme definition, and write-up. Coding was conducted manually, with themes derived systematically from participant accounts rather than predetermined theoretical frameworks.

RESULTS AND DISCUSSION

1.3 Results

Theme 1: Catalytic Acceleration of Digital Practices

Participants confirmed rapid adoption of digital platforms during the pandemic, reflecting global emergency remote teaching trends (Dhawan, 2020). This shift was widely described as reactive rather than strategic, yet it produced lasting institutional digital familiarity consistent with Sri Lankan baseline readiness previously documented (Akuratiya, D. & Meddage N., 2021).

Theme 2: Normalization of Technology-Enhanced Learning

Digital tools are now perceived as integral to pedagogy. Participants described sustained use of learning management systems, video conferencing, and mobile communication beyond the immediate crisis period. Several participants noted that principles of student-centered design, long advocated in HCI and eLearning scholarship (Silva, 2016), have become more explicitly recognized in post-pandemic course design. This aligns with broader scholarship suggesting that crisis-driven digital transformation often produces sustained pedagogical change.

Theme 3: Emerging but Unstructured AI Awareness Participants reported exploratory use of:

- Plagiarism detection software
- Automated grading systems for multiple-choice assessments

- Generative AI platforms (primarily ChatGPT) for lesson planning and content generation

This pattern corresponds with global findings that AI adoption typically begins at the individual lecturer level rather than through institutional strategy (Zawacki-Richter et al., 2019). Several participants expressed concern that generative AI use among students remains undetected and unaddressed, complicating assessment integrity and authorship norms a challenge increasingly documented in international policy discourse (UNESCO, 2023).

Theme 4: Persistent Systemic Barriers.

The study identified multi-layered challenges:

- Infrastructure Inequality: Participants reported persistent disparities in hardware availability, internet reliability, and electricity access, particularly affecting students in rural and estate sector communities. These findings echo broader concerns about digital divides in Global South higher education contexts.
- Capacity Gaps: Few participants had received formal training in AI applications for education. Most AI experimentation occurred through individual initiative rather than institutional professional development.
- Policy Vacuum: No participant was aware of any institutional or national policy specifically governing AI use in teaching, learning, or assessment. This absence of formal governance frameworks was identified as a critical vulnerability.
- Ethical Concerns: Participants raised concerns regarding academic integrity, potential algorithmic bias, student surveillance, and data privacy issues strongly emphasized in global critical scholarship and policy guidance (UNESCO, 2021; Selwyn, 2019).

Theme 5: Strategic Imperatives

Participants emphasized the need for:

- Structured AI professional development programs
- Clear institutional policies on acceptable AI use
- National-level AI in education strategies aligned with international ethical guidance (UNESCO, 2021, 2023)
- Equity-centered implementation approaches that do not exacerbate existing disparities
- Integration of HCI and student-centered design principles into AI-enabled learning environments, building upon foundational work in this area (Silva, 2016)

DISCUSSION

The findings extend prior Sri Lankan research demonstrating moderate digital readiness during the pandemic (Akuratiya, D. & Meddage N., 2021). While technical confidence among academics has increased since 2020, this study reveals that AI readiness remains institutionally fragmented and individually driven. This pattern is not unique to Sri Lanka; Zawacki-Richter et al. (2019) observed that AI adoption in higher education globally tends to precede rather than follow institutional policy.

However, the Sri Lankan context presents distinctive challenges. National policy documents have emphasized digital infrastructure development, yet these frameworks predate the widespread availability of generative AI and do not address the specific governance, pedagogical, and ethical questions AI systems introduce. The policy vacuum identified in this study thus reflects a broader gap between national digital agendas and emerging technological realities.

Notably, Sri Lankan scholarship on digital learning environments has historically emphasized human-computer interaction and student-centered design principles. Silva's (2016) examination of enabling technologies for eLearning provided early conceptual scaffolding for learner-centric digital education in the local context. The present study suggests that these HCI principles remain relevant but are insufficiently integrated into current AI adoption discourse. As AI systems increasingly mediate student-institution interactions, the human-centered design ethos articulated in earlier eLearning research must be extended to AI-enabled educational technologies. Without deliberate attention to interface design, accessibility, and user experience, AI tools risk reproducing the same usability failures that have historically undermined educational technology adoption.

International scholarship frames AI integration as a socio-technical transformation requiring attention to human, organizational, and ethical dimensions not merely technological deployment (Holmes et al., 2019). Luckin et al. (2016) argue persuasively that AI should enhance human intelligence and educator capacity within educational ecosystems. However, without structured governance and ethical safeguards, AI risks reinforcing existing inequities and introducing new forms of power asymmetry (Selwyn, 2019). These risks are particularly acute in contexts such as Sri Lanka, where infrastructural disparities and resource constraints are already pronounced.

UNESCO's (2021, 2023) policy frameworks provide actionable guidance, emphasizing that AI adoption must prioritize inclusivity, transparency, human oversight, and data protection. In the Sri Lankan context, this implies that AI integration should not proceed through isolated institutional experiments or unguided individual adoption. Rather, it requires coordinated

policy development at institutional and national levels, accompanied by sustained investment in digital infrastructure and AI-specific professional learning. Furthermore, such efforts should be grounded in established HCI and student-centered design principles to ensure that AI tools are accessible, intuitive, and pedagogically coherent (Silva, 2016).

This study therefore contends that AI integration in Sri Lankan higher education should be conceptualized as systemic reform requiring:

- (a) policy coherence across institutional and national levels,
- (b) distributed leadership that engages academics, administrators, and students,
- (c) ethical literacy as a core competency for all stakeholders,
- (d) sustained capacity development rather than one-time training interventions, and
- (e) adherence to human-centered design principles derived from HCI and eLearning scholarship.

CONCLUSION

The post-pandemic era represents a formative phase for technology integration in Sri Lankan higher education. While digital transformation has increased institutional openness to AI-enabled solutions, it has simultaneously revealed critical non-technological prerequisites for sustainable innovation: governance frameworks, infrastructural equity, professional capacity, and ethical clarity.

This study has demonstrated that pandemic-induced digital transition created baseline technological familiarity but did not automatically translate into AI readiness. Rather, AI adoption in Sri Lankan higher education remains nascent, individually driven, and institutionally ungoverned. These findings extend prior local research on digital readiness (Akuratiya, D. & Meddage N., 2021) and foundational HCI scholarship on student-centered eLearning environments (Silva, 2016), while responding directly to global calls for ethical AI governance in education (UNESCO, 2021, 2023; Selwyn, 2019).

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