

Empowering students with digital strategies for Ethical AI and Literacy in one of the comprehensive universities in South Africa

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ABSTRACT

This paper adopts the AI Literacy Framework and broader Digital Literacy Frameworks as the theoretical framework to explore students' behavioural intentions toward AI. AI literacy encompasses learners' ability to understand, evaluate, and use AI systems critically and ethically, grounding engagement in core values such as human judgment, justice, and informed decision-making, as emphasised in the Digital Promise AI Literacy Framework. Grounded in the interpretivist paradigm, a survey was conducted to identify additional resources or support to help students engage with AI effectively and responsibly. A total of 165 undergraduate students from one of South Africa's comprehensive universities completed the survey via Microsoft Forms. The survey had nine (9) questions: seven (7) were closed-ended, while the remaining were open-ended. However, this paper is based on only one of the two open-ended questions: What additional resources or support can help students engage effectively and responsibly with AI? A thematic strategy was adopted for data analysis purposes. The findings of this paper call for AI literacy and capacity-building workshops, clear guidelines for the ethical use of AI, and mentorship, collaboration, and community engagement to advance AI adoption among students. This paper has implications for the adoption of AI in higher education and how such tools can be used effectively for student learning, teaching, and assessment.

Keywords: *AI literacy, Digital literacy, Artificial Intelligence in Higher Education, Student Engagement, Ethical AI Use*

INTRODUCTION

It is believed that AI has existed since the 1950s, and, more precisely, it was first coined in 1956 at the Dartmouth Summer Research Project on Artificial Intelligence, a seminal event for the field of artificial intelligence.¹ The rapid expansion suggests that higher education institutions (HEIs) are now positioned to leverage AI in ways previously unattainable, particularly to address complex challenges in teaching and student support.

It can be argued that AI's current prominence is largely due to the convergence of big data generated by the Internet of Things (IoT), fast connectivity, and powerful computing technologies. This surge in applications has made AI increasingly relevant in higher education institutions. The IoT refers to a network of physical objects such as “*smart devices*” or “*connected devices*” that are embedded

¹ Avicena Tech Corp, *The History of Artificial Intelligence* (Sunnyvale, CA: Avicena, 2024).

with sensors, software, and communication technologies, enabling them to collect and exchange data over the internet. The IoT allows everyday objects to sense, communicate, and act without requiring human intervention.²

In its *Kagisano* series, the Council on Higher Education asserts that the utility of artificial intelligence as a human instrument is contingent upon how it is utilised.³ Several articles in *Kagisano* note that only a handful of South African higher education institutions have begun developing policy frameworks for AI integration, while most have not. This lack of structured guidance allows academics, researchers, students, and support staff to use AI at their discretion, creating risks that could undermine the integrity of teaching, learning, research, and scholarly engagement. Against this backdrop, this paper aims to explore students' perspectives on the resources, support mechanisms, and strategies needed to enable responsible and effective engagement with AI.

LITERATURE REVIEW

The concept of AI

Although there are several definitions of AI, the one that captures the essence of AI is as follows:

"Artificial Intelligence encompasses a collection of sciences, theories, and techniques, including mathematical logic, statistics, probabilities, computational neurobiology, and computer science. Its objective is to replicate the cognitive abilities exhibited by human beings."

Additionally, AI is commonly defined as the capability of computer systems or other technology-driven machines to perform tasks that typically require human intelligence and logical reasoning.⁴ Other scholars also contend that in higher education, AI refers to the application of AI technologies to enhance instruction, learning, and decision-making within academic environments.⁵ Among its potential benefits is the ability to alleviate administrative burdens for educators and students while simultaneously improving learning outcomes.

A distinction is made between AI literacy and AI competency, arguing that while the two concepts are related, they operate at different levels of understanding and skill.⁶ AI literacy refers to a foundational, conceptual grasp of artificial intelligence, encompassing knowledge, critical thinking, and ethical awareness rather than technical proficiency.⁷ In contrast, AI competency denotes the practical ability to use, engage with, develop, or manage AI systems in authentic contexts, highlighting the applied and performance-based dimensions of working with AI. These distinctions are framed within the broader social reality in which AI has become deeply embedded in everyday life, from generative tools such as ChatGPT to predictive algorithms that shape digital experiences, thereby positioning both AI literacy and AI competency as urgent educational imperatives. Together, these concepts underscore the need for educational frameworks that support not only conceptual understanding but also the practical, ethical, and critical capacities required to navigate an increasingly AI-mediated world.

AI Challenges Faced by Higher Education Institutions

The accelerating pace of technological innovation is transforming virtually every dimension of contemporary life, with higher education being no exception.⁸ This being part of the Fourth Industrial Revolution, characterized by advancements in artificial intelligence (AI) and digitalization, provides

² Anita Choudhary, "Internet of Things: A Comprehensive Overview, Architectures, Applications, Simulation Tools, Challenges and Future Directions," *Discover Internet of Things* 4, no. 1 (December 19, 2024): 31, <https://doi.org/10.1007/s43926-024-00084-3>.

³ Council on Higher Education, *Kagisano No. 15: Artificial Intelligence and Higher Education in South Africa* (Pretoria: CHE, 2024).

⁴ Yizhi Ma and Keng L. Siau, "Artificial Intelligence Impacts on Higher Education," 2018.

⁵ Phumzile Mogoale et al., "Ethical Considerations in Artificial Intelligence-Driven Environments for Higher Education," *South African Journal of Information Management* 27, no. 1 (July 25, 2025), <https://doi.org/10.4102/sajim.v27i1.2007>.

⁶ Thomas K F Chiu, "AI Literacy and Competency: Definitions, Frameworks, Development and Future Research Directions," *Interactive Learning Environments* (Taylor & Francis, 2025).

⁷ Xinyan Zhou et al., "Defining, Enhancing, and Assessing Artificial Intelligence Literacy and Competency in K-12 Education from a Systematic Review," *Interactive Learning Environments* 33, no. 10 (2025): 5766–88.

⁸ R. Manganyi, *The Role of HE in Leveraging AI: Insights from an Expert Panel* (University of South Africa (UNISA), 2024).

both significant opportunities and complex challenges for academic institutions.⁹ As AI continues to reshape global industries, higher education faces the dual imperative of leveraging its transformative potential while addressing the systemic and strategic obstacles that accompany its integration, and, most specifically, issues around its effective and ethical use.

Additionally, in the African context, the adoption and effective use of advanced technologies, including AI, remain limited due to a constellation of emerging barriers. These include insufficient technical expertise, the absence of a robust data ecosystem, ethical considerations, inadequate infrastructure, restricted network connectivity, and constraining regulatory frameworks.¹⁰ Such impediments pose significant challenges for South African higher education institutions, many of which have yet to fully harness AI's potential while contending with persistent infrastructural deficits and unclear strategies for its adoption.

Moreover, the integration of AI into South African higher education has been constrained by the lack of strategic planning and institutional policy frameworks. Rather than being systematically embedded in academic strategies, AI adoption has often occurred in an ad hoc manner, leading to fragmented and inconsistent implementation across institutions. This absence of a coherent approach underscores the minimal incorporation of AI in broader educational policies and highlights the need for comprehensive frameworks to guide its transformative role in higher education.¹¹

Evidence shows that of the 26 universities in South Africa, UKZN and UCT have the most advanced, formally approved AI policies, while NWU, UWC, and UJ have structured, institutionally implemented guidelines that are evolving into full policies. This reflects a national trend toward ethical, pedagogically informed AI governance in higher education.¹²

Furthermore, at UNISA's Catalytic Niche Area Research Symposium, an expert panel acknowledged challenges such as data privacy, ethical use, and technological readiness.¹³ Furthermore, several challenges are identified that shape the integration of AI into writing support, including persistent student misconceptions, uneven levels of tutor preparation, and tensions stemming from ambiguous or inconsistently implemented institutional policies.¹⁴ Another observation is made that universities' responses to artificial intelligence are increasingly misdirected, as institutions have become fixated on policing student use of AI tools rather than engaging with the deeper implications these technologies pose for higher education.¹⁵ It is further argued that instead of reflecting on AI's transformative power, which lies in its ability to generate human-like text, solve complex problems, and perform cognitive tasks traditionally assessed in universities, many institutions invest heavily in detection software and punitive policies. This reveals a misunderstanding of both AI's impact and the purpose of university learning. This reaction is rooted in a neoliberal shift in which universities have come to prioritise credentials, employability statistics, and task-oriented assessments over genuine intellectual development. This is why AI appears threatening, as the perception is that a machine can complete typical university assignments, exposing how hollow and mechanistic many academic tasks have become.

Further to this, UNESCO also acknowledges that, despite the global opportunities created by AI, its deployment raises significant ethical concerns.¹⁶ These include the potential for AI systems to

⁹ Manganyi, *The Role of HE in Leveraging AI: Insights from an Expert Panel*.

¹⁰ Abejide Ade-Ibijola and Chinedu Okonkwo, "Artificial Intelligence in Africa: Emerging Challenges," 2023, 101–17, https://doi.org/10.1007/978-3-031-08215-3_5.

¹¹ Emily Barnes and James Hutson, "Navigating the Ethical Terrain of AI in Higher Education: Strategies for Mitigating Bias and Promoting Fairness," *Forum for Education Studies* 2, no. 2 (June 21, 2024): 1229, <https://doi.org/10.59400/fes.v2i2.1229>.

¹² North-West University, *Policy on Artificial Intelligence (AI)* (Potchefstroom: NWU Council, 2019); University of Johannesburg, *Practice Note: Generative Artificial Intelligence in Teaching, Learning and Research*, 2023; University of Cape Town, *Introducing UCT's AI in Education Framework* (UCT News, 2025); University of KwaZuluNatal, "Principles and Guidelines on the Use of Generative Artificial Intelligence Tools in Academic Work," 2025; University of the Western Cape, "Guidelines for Use of AI in Learning and Teaching," 2025, <https://www.uwc.ac.za/news-and-announcements/news/guidelines-for-use-of-ai-in-learning-and-teaching>.

¹³ Manganyi, *The Role of HE in Leveraging AI: Insights from an Expert Panel*.

¹⁴ Lutendo Nendauni, "Integrating Artificial Intelligence (AI) Literacy into Writing Centre Pedagogy: A Reflective Practitioner's Perspective," *Scholarship of Teaching and Learning in the South* 9, no. 2 (2025): 146–56.

¹⁵ S. McKenna, "Universities' Focus on Policing Is Fighting the Wrong AI Battle," *University World News*, 2025.

¹⁶ UNESCO, "Digital Competence Framework for Citizens 2.2," 2023, <https://www.unesco.org/sdg4education2030/en/knowledge-hub/digital-competence-framework-citizens-22>.

perpetuate biases, contribute to environmental degradation, and infringe on human rights. Such risks are already exacerbating existing social inequalities, intensifying harm to marginalised groups, especially those with no access to technological resources.

It is also worth noting that several paradoxical problems arise in ethical considerations for AI-driven environments, including equity, privacy, autonomy, and the importance of human contact in education.¹⁷ In response to these concerns, UNESCO introduced the first global normative framework on AI ethics, the Recommendation on the Ethics of Artificial Intelligence, in November 2021. This standard applies to all 194 UNESCO member states and serves as a foundational guideline for the ethical governance of AI. At the heart of the recommendation lies the protection of human rights and dignity, which serves as its foundational principle. This framework is anchored in core values such as transparency and fairness, while emphasizing the critical importance of maintaining human oversight over AI systems.

Pedagogical Alternatives and Institutional Shifts Toward AI-Resilient Assessment

In the article *“Turning off AI detection software is the right call for SA universities”*, which is in stark reference to the University of Cape Town, an argument is made that South African universities are right to abandon AI detection software because these tools are fundamentally unreliable and harmful to educational relationships.¹⁸ It is also noted that Turnitin’s AI detector produces frequent false positives by flagging ordinary stylistic choices as signs of AI use, creating a climate in which students fear wrongful accusation. This flawed logic, they argue, reverses the burden of proof, making students “guilty until proven innocent” and forcing them to provide drafts, version histories, or external verification to defend themselves. Furthermore, the opaque, “black box” nature of these systems undermines fairness, due process, and students’ psychological well-being, as many become anxious and mistrustful of the institution. Most notably, the inconsistency of AI detection tools is highlighted, with different systems flagging different parts of the same text and sometimes even flagging professors’ own assignment questions as AI-generated, revealing the arbitrariness of such judgments. Additionally, beyond technical failures, widespread use of detection software undermines the foundational trust between educators and students, shifting the focus from supporting learning to policing behaviour. It is on this basis that universities should prioritise pedagogical integrity, guiding students in appropriate AI use and fostering deep learning rather than relying on unreliable surveillance tools.¹⁹

Another author alluded to this and noted that the University of Cape Town (UCT) has adopted a new institution-wide AI in Education Framework, marking a significant shift in how AI is handled in teaching, learning, and assessment.²⁰ The key change is UCT’s decision to stop using AI-detection tools such as Turnitin’s AI Score due to major concerns about their accuracy, fairness, and impact on student trust. This is mainly because the AI detection tools are unreliable and risk undermining educational integrity by falsely flagging students and creating a punitive environment. Consequently, UCT is now focusing on AI-resilient assessment, emphasising the learning process over the final product through oral exams, collaborative work, and reflective assignments that require students to disclose their AI use.²¹ This move by UCT is seen as promoting trust, fairness, and pedagogically sound assessment practices while supporting staff and students through training and guidance on responsible AI use.

THEORETICAL FRAMEWORK

This paper is underpinned by the AI Literacy Framework and broader Digital Literacy Frameworks as shown in Figure 1 herein. The integration of the AI Literacy Framework and broader Digital Literacy Frameworks provides a robust conceptual foundation for understanding the knowledge, skills, and

¹⁷ Mogoale et al., “Ethical Considerations in Artificial Intelligence-Driven Environments for Higher Education.”

¹⁸ Sioux McKenna and Neil Kramm, “Turning off AI Detection Software Is the Right Call for SA Universities,” Daily Maverick, 2025, <https://www.dailymaverick.co.za/article/2025-07-25-turning-off-ai-detection-software-the-right-call-for-sa-universities/>.

¹⁹ McKenna and Kramm, “Turning off AI Detection Software Is the Right Call for SA Universities.”

²⁰ Nick Pawson, “Why UCT Has Stopped Policing AI-Generated Student Work,” The South African, 2025, <https://www.thesouthafrican.com/news/why-uct-has-stopped-policing-ai-generated-student-work/>.

²¹ Pawson, “Why UCT Has Stopped Policing AI-Generated Student Work.”

dispositions students need to engage with artificial intelligence effectively and responsibly.²² AI literacy encompasses learners' ability to understand, evaluate, and use AI systems critically and ethically, grounding engagement in core values such as human judgment, justice, and informed decision-making, as emphasised within the Digital Promise AI Literacy Framework. Contemporary AI literacy frameworks, including those developed by Digital Promise and international organisations such as UNESCO and OECD, highlight foundational competencies, including recognising AI applications, evaluating algorithmic outputs for bias or accuracy, and engaging with AI tools safely across diverse contexts.²³ These competencies align with emerging global standards, such as the OECD–European Commission's AI Literacy Framework for Primary and Secondary Education, which defines AI literacy as encompassing the ability to engage with, create with, manage, and design AI systems responsibly.²⁴

Likewise, digital literacy frameworks emphasise the broader competencies required to navigate complex digital environments. UNESCO's Digital Literacy Global Framework, for instance, builds on the European Commission's DigComp model to outline essential digital skills covering information evaluation, communication, digital content creation, safety, and problem-solving, forming a foundation for responsible and ethical digital citizenship. These frameworks articulate the critical need for learners/students to understand how digital systems structure information, shape communication, and influence civic participation. They also underscore the importance of ethical awareness, responsible engagement,²⁵ and informed participation in digital spaces, echoing UNESCO's and related research's findings on the development of digital competence for citizens and learners.²⁶ Where AI literacy and digital literacy intersect is in their shared prioritisation of critical thinking, ethical awareness, and informed engagement. Both frameworks recognise that technical proficiency alone is insufficient; rather, learners must develop the capacity to interrogate technological systems, assess risks and benefits, understand societal implications, and retain human agency in technology-mediated decision-making. This synergy is also reflected in OECD and UNESCO initiatives that frame AI literacy as an extension of digital literacy, which requires a deeper understanding of data-driven systems, automation, and human–machine interaction.²⁷

Combined Theoretical Framework

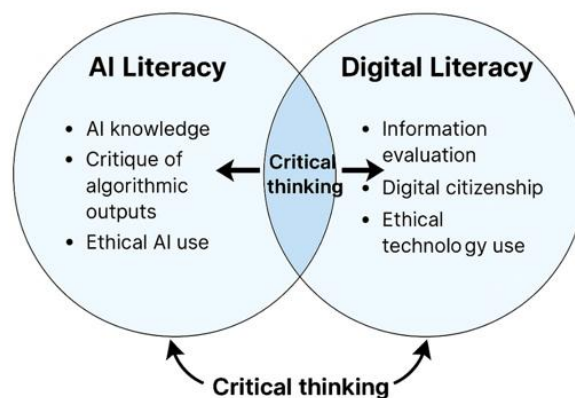


Figure 1: Combined Theoretical Framework of the paper

²² Digital Promise, "AI Literacy: A Framework to Understand, Evaluate, and Use Emerging Technology," 2024.

²³ UNESCO, "AI Competency Framework for Students," 2024.

²⁴ OECD and European Commission, "AI Literacy Framework for Primary and Secondary Education," 2025, <https://learnworkecosystemlibrary.com/initiatives/ai-literacy-framework-for-primary-secondary-education-oecd-ec/>.

²⁵ UNESCO, "Digital Competence Framework for Citizens 2.2."

²⁶ Basel Hammoda and Samuel Foli, "A Digital Competence Framework for Learners (DCFL): A Conceptual Framework for Digital Literacy.," *Knowledge Management & E-Learning* 16, no. 3 (2024): 477–500.

²⁷ OECD, "OECD Digital Education Outlook 2026," 2026, https://www.oecd.org/en/publications/oecd-digital-education-outlook-2026_062a7394-en.html.

Together, AI literacy and digital literacy provide a comprehensive lens through which institutions can design effective educational interventions. By aligning these frameworks, universities and schools can create workshops, guidelines, and curricula that ensure students not only acquire the technical skills needed to use AI tools but also develop the ethical reasoning, critical evaluative skills, and reflective dispositions necessary to navigate an AI-driven educational landscape. The combined guidance from Digital Promise, UNESCO, and OECD demonstrates the importance of cultivating learners who can act as thoughtful, responsible participants in a world where AI increasingly shapes how knowledge is produced, accessed, and applied.

METHODOLOGY

Guided by the interpretivist paradigm, this study employed a survey design to investigate students' adoption of AI tools in a South African university context and the additional resources or support that would help them engage with AI effectively and responsibly.²⁸ Interpretivist research seeks to illuminate social reality by examining the meanings individuals ascribe to their experiences, interactions, and contexts.²⁹ It foregrounds the centrality of human subjectivity and meaning-making processes, making it particularly well-suited to inquiries that explore complex, nuanced, and deeply contextualised phenomena.

In qualitative research, descriptive surveys are particularly appropriate for exploratory research in emerging fields such as AI integration, as they allow researchers to document the natural views and behaviours of respondents. The study population comprised undergraduate students enrolled in the Mentorship and Tutorship (MenTut) student support programme at a comprehensive South African university. This cohort was purposively selected, as the programme integrates digital and academic literacy development, providing a relevant context for examining students' engagement with artificial intelligence (AI) tools. As MenTut is part of broader academic development initiatives, the study also responds to the institutional imperative to enhance student success. Purposive sampling was employed, with invitations distributed to 510 students, of whom 320 completed the survey.³⁰ However, only 165 respondents gave their informed consent for the use of their data in this study. Given the breadth of data generated from both closed- and open-ended questions, this article focuses specifically on one open-ended item: *What additional resources or support can help students engage effectively and responsibly with AI?*

Data were collected using a structured, open-ended questionnaire developed in Microsoft Forms. Although the data instrument comprised five items focusing on students' familiarity with AI concepts, frequency of AI use, academic activities supported by AI tools, and training received, this paper focuses on only one question: What additional resources or support can help students to engage effectively and responsibly with AI? Microsoft Forms was selected for its accessibility, functional versatility, and efficient data export capabilities, which enabled streamlined data management and analysis. The questionnaire was constructed in alignment with the AI Literacy Framework and the broader Digital Literacy Frameworks. To enhance clarity and face validity, the instrument was reviewed by two educational researchers and was tested with a small group of students. Feedback from the pilot informed minor refinements to the wording and sequencing of the questions. Data were analysed thematically, supported by direct quotes from respondents. Subsequently, the results were interpreted through the AI Literacy Framework and broader Digital Literacy Frameworks, which provide guidance on what additional resources or support students perceive as helping them engage effectively and responsibly with AI.

²⁸ Nasrin Pervin and Mahani Mokhtar, "The Interpretivist Research Paradigm: A Subjective Notion of a Social Context," *International Journal of Academic Research in Progressive Education and Development* 11, no. 2 (April 25, 2022), <https://doi.org/10.6007/IJARPED/v11-i2/12938>.

²⁹ Samuel J. Stratton, "Purposeful Sampling: Advantages and Pitfalls," *Prehospital and Disaster Medicine* 39, no. 2 (April 22, 2024): 121–22, <https://doi.org/10.1017/S1049023X24000281>.

³⁰ Stratton, "Purposeful Sampling: Advantages and Pitfalls"; Maiss Ahmad and Stephen Wilkins, "Purposive Sampling in Qualitative Research: A Framework for the Entire Journey," *Quality & Quantity* 59, no. 2 (April 10, 2025): 1461–79, <https://doi.org/10.1007/s11135-024-02022-5>.

Ethical considerations were rigorously upheld throughout the research process, and most importantly, participation was voluntary, and informed consent was obtained from all respondents before completing the survey.³¹ Respondents were assured of anonymity and confidentiality, with no identifying information collected. The study adhered fully to the institution's ethical guidelines governing research involving human respondents.

PRESENTATION OF FINDINGS AND DISCUSSION

The findings herein are drawn from the main research question, which sought to understand students' perspectives on the kind of resources or support (e.g., workshops, courses, ethical guidelines) that can help students to engage effectively and responsibly with AI. The findings are preceded by the demographic profile of the respondents as shown in Table 1. Regarding the main guiding research question, the following key themes emerged from the data: *Provision and Introduction of AI Literacy and staff upskilling; capacitation, Workshops, and Practical Training on AI; the need for clear guidelines for the Ethical Use of AI; and Introduction of Mentorship, Collaboration, and Community Engagement.*

Profiles of the Respondents

Demographic Profiles of the Respondents

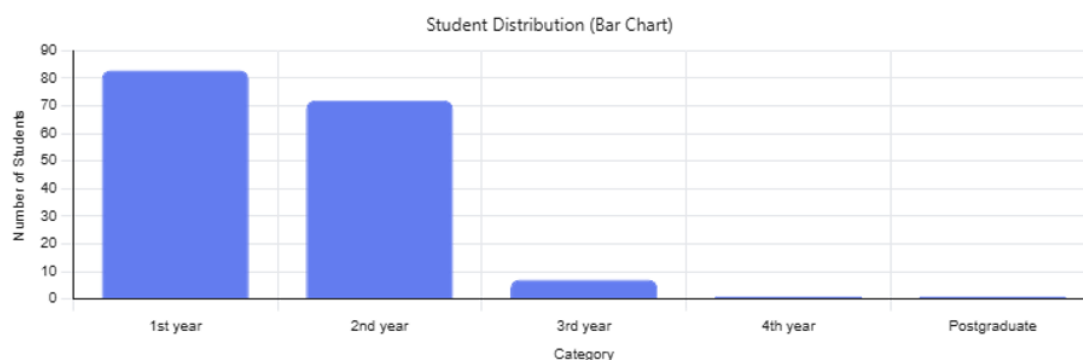


Table 1: Demographics of respondents

Table 1 presents the demographic profile of the respondents (n=165), revealing a pronounced concentration among early undergraduate students. First- and second-year students collectively constitute approximately 94% of the sample. First-year students represent the largest group (n = 83, 50%), followed closely by second-year students (n = 72, 44%), indicating strong representation of individuals in the early stages of their academic progression. In contrast, participation from more advanced cohorts is minimal, with third-year students comprising 4% (n = 7), and both fourth-year (n = 1, 1%) and postgraduate students (n = 1, 1%) being sparsely represented. This distribution suggests that the findings predominantly reflect early undergraduate experiences, with limited insight into senior and postgraduate perspectives. The next section focuses on themes that emerged from the main research question.

Provision and Introduction of AI Literacy and Upskilling of Staff

The findings show a strong and consistent call from students for systematic, institution-wide efforts to cultivate artificial intelligence (AI) literacy among both students and university personnel. Students perceive AI literacy not as an optional enhancement but as a foundational competency necessary for navigating contemporary higher education environments. Their comments indicate an acute awareness that AI use in universities is expanding rapidly and that knowledge gaps among students, academic

³¹ Pritha Bhandari, "Ethical Considerations in Research: Types & Examples" (Scribbr, 2024).

staff, and broader institutional employees may exacerbate inequalities in access, performance, and participation.

Specifically, students call for formalised educational structures, such as dedicated modules, free courses, and institutionally supported training programmes, which highlights students' desire for intentional and equitable upskilling. This would indicate that, rather than relying on informal or ad hoc learning, students advocate for embedded curricular approaches that ensure consistent exposure to AI concepts, ethical considerations, and practical applications. Student 52 noted the following to the university and other stakeholders:

"They(university) can create courses that are free for everyone, not just the students, but also the staff members also and workers, whereby they'll be taught about AI and how to use it for maximum efficiency."

The findings further highlight the need for modules that teach not only how to use AI but also its shortcomings and limitations, signalling a student preference for comprehensive literacy that includes ethical awareness, the limitations of AI tools, and potential risks such as bias, misinformation, and over-reliance on automation. This is underlined by Student 44, who had this to say:

"The university needs to invest in programmes which will educate students about the proper use of AI for academic excellence."

In support of this, Student 83, added thus:

"Introduce a module to specially teach the new generation about AI, how to use it and its disadvantages"

This aligns with global higher education trends that emphasise the integration of digital literacy and AI competencies in degree programmes to prepare students for future labour markets and technologically mediated academic practices. Overall, the findings, encapsulate students' proactive call for actions toward the future of higher education. In doing so, they illuminate the urgent need for universities to adopt coordinated, curriculum-integrated, and staff-inclusive approaches to AI upskilling.

Capacitation, Workshops, and Practical Training on AI

The findings show that students are yearning for clear, urgent, structured, practice-oriented opportunities to develop competence in the use of artificial intelligence (AI) tools. Although earlier work highlighted the need for foundational AI literacy, the findings here specifically emphasise *experiential learning (EL)*. EL is about the practical, hands-on engagement required to translate conceptual understanding into usable skills. Students highlighted the practical capacity-building as a critical enabler of meaningful participation in AI-mediated academic work.

Words indicating a call for "workshops," "short courses," and "training," as noted by Students 62 and 32, reflect the recognition that AI competence is not developed passively. Instead, they perceive AI learning as an iterative process in which guided practice, experimentation, and feedback are essential. Through practical encounters, students can develop not only operational skills but also a deeper understanding of how to leverage AI in research, writing, data analysis, and self-regulated learning. This is reflected in these quotes:

"Organise workshops and teach students how to use AI tools effectively." (Student 62)

"Workshops to train students on how to research or do data analysis using AI." (Student 32)

Moreover, the students' emphasis on practical training indicates an awareness of the skills gap that many higher education institutions face as they navigate digital transformation. Although AI tools promise enhanced efficiency and new modes of academic inquiry, without targeted training, these benefits risk remaining inaccessible or unevenly distributed. Students' suggestions point to concerns about *equity* that, without structured support, only a subset of technologically confident or resource-advantaged students will benefit from AI. Workshops thus serve as mechanisms for democratizing access, ensuring that all learners can exploit AI tools to enhance academic performance.

Importantly, the theme also integrates practical training with ethical guidance, reflecting the student's desire for clarity on responsible AI use. Calls for "clear rules" and "ethical guidelines" alongside workshops suggest that students see practical competence and ethical literacy as interdependent. This is reflected by Student 44, who noted:

"I would like the university to provide simple workshops to show how to use AI for studying, short courses on using AI tools, and clear rules or ethical guidelines to make sure we use AI in the right way."

The findings also indicated that students are aware that AI tools carry risks such as plagiarism, misrepresentation, bias, and over-reliance, and therefore, expect universities to provide not only skills training but structured frameworks for accountability. The perspectives of students collectively underline the importance of universities adopting a holistic approach to AI capacitation: one that combines hands-on training, short accredited or non-accredited courses, and ethical scaffolding. In doing so, institutions can better support learners in navigating complex, AI-rich academic environments and foster the development of competent, discerning, and ethically engaged users of emerging technologies.

The Need for Clear Guidelines on the Ethical Usage of AI

The findings show that students express a strong need for explicit, accessible ethical guidelines governing the use of artificial intelligence (AI) in academic contexts. Their comments reveal an acute awareness of the potential risks associated with AI-supported learning, particularly with respect to plagiarism, academic dishonesty, and the inappropriate delegation of scholarly tasks to AI systems. In this regard, students frame ethical guidance not as a restrictive measure but as a crucial scaffold that enables responsible, informed, and professionally aligned engagement with AI technologies.

A central thread across students' perspectives is the desire for clarity on the proper use of AI. Instead of encountering fragmented or punitive institutional responses, students seek coherent frameworks that specify acceptable practices, delineate boundaries, and outline the rationale behind ethical expectations. This is shown by **Student 150**, who had this to say:

"Clear guidelines for using AI in academic work to avoid plagiarism and access to approved AI tools and platforms for academic use."

Clear guidelines may help to reduce ambiguity around permissible use, thereby reducing anxiety and fostering a culture of responsible innovation. This is supported by **Student 159** who noted:

"Our university should at least offer guidelines on how to use AI, not prohibit it because it is our future."

Additionally, students' calls for ethical guidance also reveal an important critique of prohibition-oriented approaches. Comments suggest that banning or severely restricting AI use is perceived as misaligned with technological realities. Students highlight that AI tools are becoming embedded in professional environments, making them indispensable for future employability. Thus, they advocate for policies that balance risk mitigation with enabling access. This indicates that students understand that ethics and innovation must be co-developed, rather than positioned in opposition. Moreover, AI is perceived as a "professional tool" by **Student 160**, who had this to say:

"There is a need for ethical guidelines, as after all, AI is a professional tool for many jobs."

This implies that universities have a duty to cultivate not only academic integrity but also professional digital ethics, which are skills that extend beyond the classroom. This reflects a broader conceptual shift in higher education, where digital literacy frameworks increasingly integrate ethical reasoning, awareness of algorithmic bias, data privacy considerations, and reflective judgement. Students appear to recognise that ethical AI literacy is a transferable competency that will shape their future careers in fields ranging from education and business to engineering and public administration.

Introduction of Mentorship, Collaboration, and Community Engagement for Effective AI Education

The findings show that students underscore the importance of mentorship, peer collaboration, and broader community engagement as integral components of effective AI education. These perspectives suggest that AI literacy cannot be developed solely through individual study or isolated training sessions; rather, it requires social, relational, and community-driven learning structures.

There is a call for mentorship programmes to help navigate AI spaces, specifically those that pair students with experienced AI practitioners or researchers, reflecting an understanding of learning as an apprenticeship-based process. This is highlighted by **Student 14**, who had this to say:

“Mentorship programmes, pairing students with experienced professionals or researchers of AI.”

This suggests that students recognize that navigating complex AI tools and concepts can be challenging without guidance from individuals with advanced knowledge and professional experience. Such mentorship initiatives not only accelerate skill acquisition but also offer students insights into real-world AI applications, ethical decision-making, and evolving industry expectations.

Students also emphasised collaboration and peer engagement, further illustrating their belief in the value of collective learning environments. Workshops and interactive sessions are perceived not only as instructional spaces but also as platforms for dialogue, idea sharing, and mutual support. Through collaborative engagement, students anticipate gaining diverse perspectives on AI use, discovering innovative practices, and cultivating confidence in using AI tools. This emphasis is shown by **Student 16**, who noted:

“Workshops will help us to engage with others and share different ideas on how to use it or how it can assist us.”

In addition, students highlight the importance of community engagement and institutional partnerships. A call for “partnerships and collaborations” suggests that universities can strengthen AI education by connecting with external stakeholders, including industry partners, civic organisations, and regional communities. This is shown by **Student 30**, who noted:

“Partnerships and collaborations, community engagement and support.”

These collaborations can facilitate access to expert knowledge, internship opportunities, and community-based projects that contextualize AI in real societal settings. This would also indicate that students' views and understanding of AI are not limited to a technical domain but extend to a social and community-embedded technology whose ethical and inclusive deployment requires cross-sector engagement.

The general findings position AI education as a shared endeavour that thrives in relational ecosystems. This is clearly evident in students' desire for a holistic AI learning environment enriched by mentorship, peer collaboration, and community partnerships. Such a move would certainly support their academic development while preparing them for the interconnected professional world in which AI plays an increasingly central role.

DISCUSSION

Concerns have been raised about South Africa's delayed response to the pedagogical and ethical implications of artificial intelligence (AI) in higher education. The absence of early, proactive frameworks has led institutions to react defensively, often penalising students for AI overuse, overreliance, or plagiarism rather than guiding responsible engagement.³² This reactive posture stands in contrast to emerging global perspectives that call for strategic, future-focused integration of AI into teaching and learning. Although AI is indispensable for the future of higher education, its adoption must balance innovation with academic integrity, critical thinking, and creativity. The potential of AI to democratise education, particularly in resource-constrained contexts, lies in its ability to support personalised learning and expand access. However, its benefits are intertwined with challenges such as

³² Angela Kapato, “AI Is Here to Stay: Why Higher Education Must Embrace Artificial Intelligence,” University of Pretoria, 2024, <https://www.up.ac.za/news/ai-here-stay-why-higher-education-must-embrace-artificial-intelligence>.

ethical use, data privacy, and student over-reliance, problems that remain acute in many higher education environments. Therefore, it emphasises the need for robust institutional policies, clear guidelines, and targeted AI literacy initiatives.

An illustration of institutional responsiveness is found in the Independent Institute of Education (IIE)³³, one of South Africa's largest private higher education providers. A report on the IIE's adoption of the AI-powered Brightspace platform for over 65,000 students demonstrates how AI can enhance learning through improved customisation, digital tools, and user experience.³⁴

Beyond practical implementation, scholars have interrogated AI's implications for the university's very purpose. Further arguments are made about how increasing automation compels institutions to reconsider whether they view themselves primarily as producers of outputs, degrees, research, and innovation, or as ecosystems that cultivate expertise through mentoring, intellectual challenge, and developmental growth.³⁵ From this perspective, a caution is made that the formative, human-centred processes of higher education must not be eroded as AI takes on more academic tasks. Ultimately, they contend that institutional decisions regarding AI adoption will shape not only future practices but the identity of the university itself. A scoping review identifies seven major applications of AI in English language assessment, including automated item generation, chatbots, adaptive testing, AI-driven scoring, instant feedback systems, and speech recognition.³⁶ These tools streamline assessment, promote learner engagement, and enable personalised learning, while also helping educators adopt more flexible pedagogical approaches aligned with standards and assessment demands. At a pedagogical level, the importance of positioning AI as a complement rather than a replacement for human teaching. For example, the AI-teacher task spectrum distinguishes between automatable tasks and those that require human judgment, enabling academics to devote more time to complex relational work, such as mentoring and critical dialogue.³⁷ This principle is reinforced by their piloted motivational coaching chatbot, which offered supportive, non-evaluative prompts that enhanced student motivation, confidence, and self-regulation. Students valued the consistent encouragement, while educators experienced reduced administrative load, evidence that well-designed AI systems can enhance learner support while preserving human centrality.³⁸

Similarly, arguments are made for intentional, thoughtful adoption of AI, urging universities to shift from punitive approaches toward proactive engagement that supports human intellectual development.³⁹ Accordingly, institutions must reclaim their role as intellectual and moral communities capable of guiding society through technological change.

Additionally, practical strategies are proposed, including consultation prompts, workshop structures, and tutor training, to promote the ethical and pedagogically aligned use of AI in academic writing support.⁴⁰ The emphasis of this is that AI literacy is a negotiated, evolving process shaped by ethical considerations, pedagogical aims, and institutional contexts. For students, this involves cultivating reflective practices that safeguard originality and integrity; for tutors, it requires sustained professional development to build technical and pedagogical competence. At the institutional level, there is a need for coherent policies and equitable access to AI resources.

The findings of the present study further underscore the growing student-driven demand for clear, supportive, and future-oriented AI guidelines. Similarly, there are increasing calls for institutional

³³ The Independent Institute of Education (IIE) is South Africa's largest private higher education institution, operating across the country through multiple educational brands and campuses. It is registered with the Department of Higher Education and Training (DHET) as a private higher education provider and forms part of the ADvTECH Group, a major JSE-listed education group. <https://www.iie.ac.za>.

³⁴ Nir Eisikovits and Jacob Burley, "The Greatest Risk of AI in Higher Education Isn't Cheating – It's the Erosion of Learning Itself" (The Conversation, 2026).

³⁵ Myles Illidge, "Largest Private Varsity Group in South Africa Bets Big on AI," MyBroadband, 2025, <https://mybroadband.co.za/news/trending/604313-largest-private-varsity-group-in-south-africa-bets-big-on-ai.html>.

³⁶ Dennis Alonzo, Jan Michael Vincent Abril, and Cherry Zin Oo, "The Use of Artificial Intelligence in English Language Assessment: Empirical Evidence and Future Directions," *Critical Studies in Teaching and Learning* 13,no.2(2025):107–32.

³⁷ Meena Jha et al., "Beyond the Buzz: How AI Can Be a Coach, Not a Competitor, in the University Classroom," *Times Higher Education*, 2025, <https://www.timeshighereducation.com/campus/beyond-buzz-how-ai-can-be-coach-not-competitor-university-classroom>.

³⁸ McKenna, "Universities' Focus on Policing Is Fighting the Wrong AI Battle."

³⁹ Nendauni, "Integrating Artificial Intelligence (AI) Literacy into Writing Centre Pedagogy: A Reflective Practitioner's Perspective."

⁴⁰ Nendauni, "Integrating Artificial Intelligence (AI) Literacy into Writing Centre Pedagogy: A Reflective Practitioner's Perspective."

AI policies that prevent plagiarism without limiting legitimate academic use. These frameworks are critical to balancing innovation with integrity, avoiding inadvertent misuse, and ensuring that AI contributes positively to learning, professional preparedness, and institutional trustworthiness, especially given AI's capacity to generate inaccurate information that may undermine genuine subject mastery.

Internationally, comprehensive policy responses are emerging. The Higher Education Authority's *Generative AI in Higher Education Teaching & Learning: Policy Framework* offers a sector-wide value-driven approach for Irish institutions.⁴¹ The framework emphasises principles such as academic integrity, critical thinking, sustainability, inclusion, and human agency. It calls for redesigned assessments suited to AI-rich environments, transparent communication about acceptable AI use, and staff and student capability-building. While establishing national coherence, the framework remains adaptable, enabling institutions to develop context-specific policies. Crucially, it connects with broader HEA initiatives, including sectoral consultations and an AI resource portal, contributing to a coordinated and future-focused system response.

RECOMMENDATIONS

The findings suggest a clear need for higher education institutions to adopt a holistic, structured, and future-oriented approach to integrating artificial intelligence (AI) into teaching and learning. Institutions should implement comprehensive AI literacy programmes that are accessible to all students, academic staff, and support personnel, ensuring that AI competence is treated as a foundational academic and professional skill. These programmes should include dedicated curriculum-integrated modules, short courses, and training opportunities that address both the practical uses and limitations of AI tools. In addition, universities should provide hands-on workshops and experiential training that equip students with practical skills in research, writing, data analysis, and academic tasks, while simultaneously embedding ethical considerations. Clear, transparent, and accessible guidelines for the ethical use of AI are essential to reduce ambiguity, prevent academic misconduct, and foster responsible innovation. Furthermore, institutions should establish mentorship structures, peer collaboration initiatives, and community partnerships that support relational and socially grounded AI learning. Such initiatives would enable students to learn from experts, engage in collaborative problem-solving, and contextualise AI usage within broader societal and professional settings. Collectively, these recommendations highlight the urgent need for universities to create inclusive, ethically informed, and pedagogically sound AI ecosystems that prepare students for an increasingly AI-driven world.

CONCLUSION

The findings collectively indicate that students strongly desire a holistic, future-oriented institutional approach to artificial intelligence education that extends beyond sporadic training to a comprehensive ecosystem of literacy, practice, ethics, mentorship, and collaboration. Students view AI not only as a technological tool but also as an integral component of academic work and future employability, necessitating structured institutional support. By implementing coordinated AI literacy programmes, offering practical and experiential training, establishing clear ethical guidelines, and fostering mentorship and community engagement, universities can equip students with the competence, confidence, and ethical grounding required to navigate AI-rich academic and professional spaces. Ultimately, these recommendations highlight the urgent need for higher education institutions to adopt proactive, inclusive, and pedagogically grounded strategies to ensure that AI enhances rather than disrupts learning, integrity, and equity in the evolving landscape of higher education.

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⁴¹ James O'Sullivan et al., *Generative AI in Higher Education Teaching & Learning: National Policy Framework* (Higher Education Authority, 2025).

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