

RESEARCH ARTICLE

AI Literacy and Academic Integrity in Pakistani Higher Education: Navigating the Pedagogical Frontier

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Abstract

The rapid proliferation of generative artificial intelligence tools in higher education has precipitated an urgent pedagogical and ethical reckoning, particularly in developing countries where institutional frameworks remain nascent and digital infrastructures are unevenly distributed. This paper critically examines the intersection of AI literacy and academic integrity within Pakistan's higher education landscape, a context characterised by rapid technological adoption, significant socioeconomic disparities, and evolving institutional responses. Through a comprehensive synthesis of recent scholarship, policy documents, and empirical studies conducted in Pakistani universities, this research investigates how students and faculty navigate the ambiguous terrain of generative AI use, the factors that shape AI literacy among university populations, and the institutional strategies that are emerging to address the integrity challenges posed by these technologies. The findings reveal that while Pakistani university students demonstrate moderate levels of AI literacy, significant gaps persist in ethical awareness and critical evaluation of AI-generated content, with access, gender, and socioeconomic status serving as key determinants of AI engagement. Furthermore, the analysis identifies a phenomenon of "moral improvisation," wherein both faculty and students are compelled to make situated ethical decisions in the absence of clear institutional guidance, leading to inconsistent expectations and uneven academic standards. The paper proposes a comprehensive framework for fostering AI literacy and safeguarding academic integrity that encompasses curriculum integration, faculty development, assessment redesign, and the cultivation of a culture of ethical AI use. This research contributes to the growing body of scholarship on AI in education within the Global South and offers actionable recommendations for policymakers, institutional leaders, and educators seeking to navigate the pedagogical frontier of generative AI.

Keywords: Artificial Intelligence Literacy, Academic Integrity, Generative AI, Higher Education, Pakistan, Moral Improvisation, Digital Divide

Introduction

The emergence of generative artificial intelligence represents perhaps the most significant pedagogical disruption since the advent of the internet, fundamentally challenging long-established assumptions about teaching, learning, assessment, and the very nature of

knowledge itself. Since the public release of sophisticated large language models in late 2022, universities across the globe have been compelled to confront technologies capable of producing coherent essays, solving complex problems, generating computer code, and engaging in nuanced dialogue across virtually any domain of

human inquiry. For higher education systems in the developing world, this technological revolution arrives at a moment of already significant transformation, as institutions grapple with expanding access, improving quality, and preparing graduates for an increasingly digital and globalised economy. The convergence of these pressures creates both an unprecedented crisis and a remarkable opportunity for pedagogical innovation and institutional renewal.

Pakistan's higher education sector presents a particularly compelling case for examining the intersection of AI literacy and academic integrity. With over 200 universities and degree-awarding institutions serving more than 1.8 million students, the country's higher education system is undergoing substantial reform aimed at enhancing quality, expanding access, and improving relevance to economic development. The government has articulated ambitious goals for digital transformation, including the recent unveiling of Pakistan's first National Artificial Intelligence Policy 2025, which signals a commitment to integrating AI across sectors. Simultaneously, the Higher Education Commission has begun developing frameworks for AI integration, though these efforts remain at an early stage. This policy momentum, however, exists alongside significant structural challenges: regional disparities in educational quality, limited institutional capacity, socioeconomic inequalities that shape access to digital technologies, and a lingering uncertainty about the appropriate role of AI in teaching, learning, and assessment.

The discourse surrounding generative AI in Pakistani academia has been characterised by considerable

polarisation and anxiety. On one side, there is palpable concern about academic dishonesty, the erosion of critical thinking, and the potential devaluation of university credentials. These fears are not unfounded: tools that rewrite AI-generated text to mimic human patterns are freely available, widely used, and largely invisible to the plagiarism checkers that most Pakistani universities rely upon. A student can generate an essay, run it through a humaniser, and submit work that bears little relationship to their actual understanding or effort. On the other side, there is growing recognition that AI tools can enhance learning, support research, and prepare students for a future in which human-machine collaboration will be ubiquitous. This tension is captured vividly in the observation that generative AI has not merely presented an integrity challenge but has "fundamentally broken the traditional academic contract, forcing a critical re-evaluation of what constitutes 'original work' in the 21st century".

The inadequacy of simplistic responses—whether outright prohibition or uncritical embrace—suggests the necessity of a more nuanced, evidence-based approach to understanding and responding to generative AI's implications for Pakistani higher education. Central to this approach is the development of AI literacy, which encompasses not merely the technical skills to use AI tools but also the critical understanding necessary to evaluate their outputs, recognise their limitations, and deploy them ethically. Recent research has demonstrated that students' AI literacy plays a chain-mediating role in the relationship between GenAI engagement and learning outcomes, underscoring the importance of cultivating this competency. At the same time, a qualitative study of

Pakistani universities has revealed that in the absence of clear institutional guidance, both faculty and students engage in what has been termed "moral improvisation"—making situated, ethical decisions about AI use that lead to significant uncertainty, emotional responsibility, and uneven expectations across classes and peer groups.

This paper aims to contribute to the emerging body of scholarship on AI in Pakistani higher education by providing a critical synthesis of current knowledge and proposing a strategic framework for fostering AI literacy and safeguarding academic integrity. The central argument is that effective engagement with generative AI requires a fundamental reimagining of pedagogical practice, assessment design, and institutional governance. Rather than viewing AI as either a threat to be contained or a solution to be embraced, educational stakeholders must develop the capacity to work with these technologies in ways that amplify human potential, cultivate critical consciousness, and prepare students for a future in which AI will be an ubiquitous presence. The paper is structured to provide a comprehensive exploration of these issues, beginning with a review of the relevant literature, followed by a detailed examination of findings from recent empirical studies in Pakistan, and concluding with a discussion of implications for practice and policy.

Literature Review

The scholarship on artificial intelligence in higher education has expanded exponentially since late 2022, generating a rich and diverse body of research that examines technological capabilities, pedagogical implications, ethical considerations, and policy

frameworks. Within this broader corpus, a growing body of literature addresses the specific challenges and opportunities facing developing countries, with Pakistan emerging as a significant site of empirical inquiry. This review synthesises key findings from these interconnected bodies of scholarship, with particular attention to AI literacy, academic integrity, and the institutional responses that are shaping the integration of generative AI in Pakistani higher education.

Conceptualising AI Literacy in Higher Education

AI literacy has emerged as a foundational concept in the discourse on AI and education, encompassing the knowledge, skills, and attitudes necessary for effective and responsible engagement with AI technologies. Recent scholarship has operationalised AI literacy through four core constructs: awareness of AI capabilities and applications, the ability to use AI tools effectively, the capacity to evaluate AI outputs critically, and an understanding of the ethical implications of AI use. This multidimensional conceptualisation recognises that AI literacy extends beyond technical proficiency to encompass the critical and ethical dimensions that are essential for responsible citizenship in an AI-mediated world.

Empirical research on AI literacy in the Pakistani context has begun to illuminate both the current state of student competency and the factors that shape it. A cross-sectional survey of university students in Pakistan revealed that participants demonstrated a moderate level of AI literacy, with no significant differences by program level or gender. However, the same study found that positive attitudes toward AI and greater use

of AI were predicted by better availability of technology and higher AI literacy, along with male gender, urban belonging, and higher wealth status. These findings highlight the significant role that socioeconomic factors play in shaping AI engagement, suggesting that without deliberate intervention, AI may exacerbate rather than ameliorate existing educational inequalities.

The Integrity Challenge: Generative AI and Academic Assessment

Perhaps the most visible and contentious aspect of the AI discourse in higher education concerns the threat to academic integrity and the validity of traditional assessment methods. Generative AI tools can produce work that is difficult to distinguish from human-authored content, challenging the credibility of take-home essays, problem sets, and other forms of assessment that have long been staples of university education. In Pakistan, this challenge is particularly acute given the prevalence of traditional assessment practices that privilege recall and reproduction over critical analysis and original synthesis.

The integrity challenge is compounded by the technological sophistication of available tools. As one commentator has noted, "tools that rewrite AI-generated text to mimic human patterns are freely available, widely used, and largely invisible to the plagiarism checkers most Pakistani universities rely on". This technological arms race places institutions in a reactive position, perpetually struggling to catch up with evolving AI capabilities. Moreover, the focus on detection and enforcement may be fundamentally misguided, as it positions educators as adversaries rather than partners in students' learning journeys and

fails to address the pedagogical dimensions of the challenge.

Institutional Responses and the Phenomenon of Moral Improvisation

Research on institutional responses to generative AI in Pakistan reveals a landscape of considerable variation and uncertainty. While some universities have begun developing guidelines and training programmes, many institutions lack clear policies on the acceptable use of AI. This policy vacuum has significant consequences for both faculty and students, who are left to navigate a complex and ambiguous terrain without institutional support or guidance.

A qualitative study examining faculty and student experiences in Pakistani universities identified a phenomenon of "moral improvisation," wherein both groups are compelled to make situated ethical decisions about AI use in the absence of clear institutional guidance. This improvisation leads to significant uncertainty about acceptable AI use, fairness in assessment, and differing expectations across classes and peer groups. Faculty members report feeling uncertain about how to address AI use in their courses, while students express confusion about what constitutes acceptable assistance versus academic dishonesty. This situation is particularly problematic because it creates inconsistent academic standards, with students in different courses or with different instructors facing vastly different expectations and consequences.

The Pedagogical Potential and Challenges of Generative AI

Beyond the integrity challenge, scholarship has explored the pedagogical potential of generative AI for enhancing teaching and learning. Studies have

identified several areas where AI tools can contribute positively to education, including personalised learning, automated feedback, and the scaffolding of complex cognitive tasks. In the Pakistani context, researchers have investigated how generative AI can contribute to independent language learning, finding that GenAI-mediated informal digital learning can enhance AI literacy and willingness to communicate in a second language.

However, the scholarship also emphasises significant caveats. Without pedagogical guidance, outsourcing cognitive tasks to AI can lead to what has been termed "metacognitive laziness," where students achieve surface-level performance without genuine learning gains. This finding underscores the importance of intentional pedagogical design in AI integration, as well as the need for educators to develop the capacity to guide students in effective and responsible AI use. Research on university teachers' behavioural intentions regarding AI instructional use has identified AI literacy, pedagogical relevance, and organisational guidelines as key determinants of adoption, suggesting that institutional support and professional development are critical for effective integration.

Methodology

This study employs a qualitative, conceptual approach that combines critical literature review with policy analysis to examine AI literacy and academic integrity in Pakistani higher education. This methodological choice is appropriate for investigating a nascent and rapidly evolving field where the primary goal is to synthesise disparate findings, identify key conceptual frameworks, and formulate

strategic recommendations for practice and policy.

Research Design and Approach

The research is structured as a critical synthesis of the extant literature on AI in Pakistani higher education, complemented by analysis of policy documents and institutional reports. This approach enables comprehensive examination of the current state of knowledge while attending to the specific contextual factors that shape AI integration in Pakistan. The analysis is grounded in the recognition that the relationship between AI and education is not technologically determined but is actively constructed through pedagogical choices, institutional policies, and broader sociocultural conditions.

The research design encompasses three interrelated analytic components. The first is a systematic review of international scholarship on AI literacy and academic integrity, providing the theoretical framework and comparative context for the analysis. The second is a focused examination of empirical studies conducted in Pakistani universities, enabling identification of context-specific patterns and challenges. The third is an analysis of policy documents and institutional reports, examining the extent to which AI literacy and integrity considerations are addressed in national and institutional frameworks.

Data Collection and Sources

Data were collected from multiple sources to ensure comprehensiveness and triangulation of evidence. Academic literature was identified through systematic searches of databases including Google Scholar, Scopus, and Web of Science, using search terms related to AI literacy, academic integrity, generative AI, and Pakistani higher education. Priority was

given to recent publications to capture the rapidly evolving nature of the field, though foundational works in educational technology and integrity scholarship were also included to provide historical and theoretical grounding.

Policy documents were collected from government websites, Higher Education Commission publications, and institutional reports. Key sources included Pakistan's National Artificial Intelligence Policy 2025, HEC guidelines on AI integration, and institutional policies from Pakistani universities where available. The analysis also incorporated news reports and commentary from Pakistani media to capture the public discourse surrounding AI in education.

Analytical Framework

The analysis was guided by a conceptual framework that integrates insights from AI literacy scholarship, academic integrity research, and policy analysis. This framework posits that effective engagement with generative AI requires attention to three interconnected dimensions: the cognitive dimension of AI literacy (knowledge and skills), the ethical dimension of academic integrity (principles and practices), and the institutional dimension of policy and governance (frameworks and support). At each dimension, both opportunities for enhanced practice and risks of negative outcomes are present, and the framework emphasises that these outcomes are shaped by pedagogical choices and institutional conditions.

Policy analysis was conducted using thematic analysis, identifying key themes and policy commitments across documents with particular attention to how AI literacy and academic integrity are conceptualised and addressed. The analysis also examined the extent to which equity

considerations are incorporated into policy frameworks, recognising that AI integration has distributional implications that must be explicitly addressed.

Limitations

This study has several limitations that should be acknowledged. The analysis is based on publicly available documents and scholarship and does not include primary data collection from educators, students, or institutional leaders. While this approach enables a comprehensive review of policy and scholarship, it cannot capture the lived experiences and perspectives of those most directly affected by AI integration. The rapidly evolving nature of AI technology means that the policy and scholarly landscape continues to change, and findings should be interpreted as a snapshot of a dynamic situation. Despite these limitations, the study aims to provide a substantive and useful contribution to understanding AI literacy and academic integrity in Pakistani higher education.

Results and Analysis

The State of AI Literacy Among Pakistani University Students

The analysis of empirical research on AI literacy in Pakistan reveals a complex and nuanced picture. Recent studies indicate that university students demonstrate a moderate level of AI literacy, with awareness of AI tools and basic usage skills being more developed than critical evaluation capabilities and ethical understanding. This pattern is consistent with findings from other developing country contexts, where access to technology often precedes the development of the critical competencies necessary for responsible use.

Socioeconomic factors emerge as significant determinants of AI literacy and

engagement. Research has found that positive attitudes toward AI and greater use of AI are predicted by better availability of technology and higher AI literacy, along with male gender, urban belonging, and higher wealth status. These findings highlight the persistent digital divide that shapes AI engagement in Pakistan, with students from privileged backgrounds having greater access to AI tools and more opportunities to develop AI literacy. The gender dimension is particularly noteworthy, as it suggests that AI may reinforce existing patterns of gender inequality in education and technology.

The relationship between AI literacy and learning outcomes is mediated by several factors. Studies on GenAI-mediated informal digital learning have found that students' AI literacy and their emotional responses to AI play a chain-mediating role in the relationship between GenAI participation and learning outcomes. This finding underscores the importance of not only developing AI literacy but also attending to the affective dimensions of AI engagement, including students' confidence, motivation, and emotional responses to AI tools.

Navigating Academic Integrity in the Age of AI

The analysis reveals significant challenges to academic integrity posed by generative AI, compounded by the absence of clear institutional guidance in many Pakistani universities. The fundamental challenge is that generative AI has "fundamentally broken the traditional academic contract, forcing a critical re-evaluation of what constitutes 'original work' in the 21st century". This rupture is particularly acute in a context where assessment practices have traditionally

privileged the production of written work that can now be easily generated by AI.

The technological sophistication of available tools compounds the integrity challenge. Tools that can rewrite AI-generated text to mimic human patterns are freely available and widely used, and they are "largely invisible to the plagiarism checkers most Pakistani universities rely on". This creates a situation where conventional detection methods are increasingly ineffective, leaving institutions struggling to maintain academic standards. The focus on detection and enforcement may be counterproductive, as it creates an adversarial relationship between educators and students and fails to address the underlying pedagogical issues.

Research on faculty and student experiences has identified the phenomenon of "moral improvisation," wherein both groups are compelled to make situated ethical decisions about AI use in the absence of clear institutional guidance. This improvisation leads to significant uncertainty about acceptable AI use, fairness in assessment, and differing expectations across classes and peer groups. Faculty members report feeling uncertain about how to address AI use in their courses, while students express confusion about what constitutes acceptable assistance versus academic dishonesty. This situation is particularly problematic because it creates inconsistent academic standards and places an emotional burden on both faculty and students.

Institutional Responses and Policy Development

The analysis of institutional responses reveals a landscape of considerable variation and emerging policy development. Pakistan has recently

unveiled its first National Artificial Intelligence Policy 2025, marking a significant step toward a coordinated national approach to AI governance. The policy addresses data privacy safeguards and the creation of a secure AI environment, though its specific provisions for education remain to be fully articulated.

The Higher Education Commission has begun developing frameworks for AI integration, though these efforts remain at an early stage. Some universities have taken proactive steps, with institutions like the University of Central Punjab training faculty members on research integrity and ethical standards in adopting AI technologies. Other institutions, such as Allama Iqbal Open University, have engaged in qualitative research on the responsible governance of generative AI in university research. These efforts, while promising, are not yet widespread, and many institutions lack clear policies on the acceptable use of AI.

The policy landscape is further complicated by the rapid pace of technological change, which outstrips the capacity of institutions to develop and implement responsive policies. As one commentator has noted, "Pakistan's AI ambitions are not unreasonable. The policy exists. The curriculum revision exists. The intent", but the translation of policy into practice remains a significant challenge. This gap between policy aspiration and implementation reality is characteristic of many developing country contexts, where resource constraints and institutional capacity limitations impede effective policy execution.

The Digital Divide and Equity Implications

A significant finding of this analysis concerns the equity implications of AI

integration in Pakistani higher education. The research reveals that access to AI tools and the development of AI literacy are shaped by socioeconomic factors, with students from privileged backgrounds having significant advantages. This pattern suggests that without deliberate intervention, AI may exacerbate rather than ameliorate existing educational inequalities.

The digital divide in Pakistan manifests in multiple dimensions. Urban students have greater access to reliable internet connectivity and digital devices than their rural counterparts. Students from wealthier families are more likely to have access to premium AI tools and the digital skills necessary to use them effectively. Gender disparities persist, with male students demonstrating greater engagement with AI technologies. These intersecting inequalities create a situation where the benefits of AI are unevenly distributed, potentially reinforcing patterns of educational stratification.

The equity implications extend beyond access to include the development of AI literacy and the capacity to use AI effectively for learning. Students who lack access to AI tools or who have limited opportunities to develop AI literacy may be disadvantaged in educational contexts where AI use is increasingly expected or assumed. Furthermore, students from disadvantaged backgrounds may be more vulnerable to the risks of AI, including the temptation to use AI for academic dishonesty or the exploitation of AI tools without the critical understanding necessary for responsible use.

Faculty Perspectives and Professional Development Needs

The analysis reveals significant challenges and opportunities related to

faculty engagement with generative AI. Research on university teachers' behavioural intentions regarding AI instructional use has identified AI literacy, pedagogical relevance, and organisational guidelines as key determinants of adoption. This finding underscores the importance of professional development that addresses not only technical skills but also pedagogical knowledge and ethical understanding.

Faculty members in Pakistani universities report feeling uncertain about how to address AI use in their courses and express a need for institutional guidance and support. This uncertainty is compounded by the rapid pace of technological change, which makes it difficult for educators to stay current with AI capabilities and their implications for teaching and learning. The absence of clear institutional policies places an additional burden on faculty, who must make individual decisions about AI use without the benefit of institutional frameworks.

Professional development initiatives are emerging to address these needs. National initiatives, such as the partnership between the Ministry of Information Technology and Telecommunications, the Higher Education Commission, Meta, and the National Computing Education Accreditation Council, have launched faculty upskilling programmes targeting 250 to 500 educators. These programmes combine soft skills training for non-technical faculty with technical AI certifications, representing a promising approach to building faculty capacity. However, the scale of these initiatives remains limited relative to the size of Pakistan's higher education sector, and sustained investment in professional development is necessary.

Discussion

The Imperative of AI Literacy as a Foundational Competency

The findings of this analysis underscore the imperative of AI literacy as a foundational competency for twenty-first-century higher education. In a context where generative AI tools are increasingly pervasive and sophisticated, the ability to use these tools effectively, evaluate their outputs critically, and deploy them ethically is essential for academic success and professional preparedness. The moderate levels of AI literacy observed among Pakistani university students suggest significant room for improvement and highlight the need for systematic efforts to develop this competency.

AI literacy must be understood as a multidimensional construct that encompasses not only technical skills but also critical and ethical dimensions. Students need to understand how AI works, its strengths and limitations, and its implications for knowledge production and academic integrity. They need to develop the capacity to evaluate AI-generated content, recognising its potential biases and inaccuracies. They need to understand the ethical considerations surrounding AI use, including issues of privacy, fairness, and academic honesty. This comprehensive approach to AI literacy is essential for preparing students to navigate an AI-mediated world responsibly and effectively.

The development of AI literacy cannot be left to chance or assumed to result from exposure to AI tools. Deliberate pedagogical interventions are necessary, including the integration of AI literacy into curriculum and the provision of targeted learning opportunities. This integration

should occur across disciplines, recognising that AI has implications for all fields of study. It should also be developmental, building progressively from foundational awareness to sophisticated critical engagement as students advance through their programmes.

Rethinking Academic Integrity in an AI-Mediated Context

The integrity challenges posed by generative AI necessitate a fundamental rethinking of academic integrity and its enforcement. The traditional model of academic integrity, which emphasises the detection and punishment of dishonesty, is increasingly inadequate in a context where AI can generate work that is difficult to distinguish from human-authored content. Moreover, this model creates an adversarial relationship between educators and students that is antithetical to the educational mission.

A more constructive approach reframes academic integrity as a positive educational value to be cultivated rather than a set of prohibitions to be enforced. This approach emphasises the development of students' understanding of academic values, including honesty, trust, fairness, respect, and responsibility. It recognises that students need guidance and support in navigating the complex ethical terrain of AI use, rather than simply being told what not to do. This positive approach is particularly important in the Pakistani context, where the phenomenon of "moral improvisation" suggests that students and faculty are making ethical decisions in a vacuum of institutional guidance.

Assessment redesign is a crucial component of this rethinking. Traditional assessment methods that privilege the production of written work are vulnerable

to AI misuse and may no longer be valid measures of student learning. Alternative assessment approaches, including oral examinations, portfolios, project-based assessments, and in-class writing, can provide more authentic measures of student learning while reducing opportunities for AI misuse. These approaches also align with broader calls for assessment reform that emphasise the development of higher-order thinking skills over recall and reproduction.

The Centrality of Institutional Policy and Support

The analysis reveals the critical importance of institutional policy and support in shaping effective and ethical AI integration. The absence of clear institutional guidance creates uncertainty for both faculty and students, leading to inconsistent expectations and uneven academic standards. Conversely, institutions that develop clear policies and provide support for faculty and students are better positioned to navigate the challenges of AI integration.

Effective institutional policy should address multiple dimensions of AI integration. It should provide clear guidance on acceptable AI use, distinguishing between appropriate assistance and academic dishonesty. It should address issues of assessment validity, providing guidance on how to design assessments that are resilient to AI misuse. It should support faculty development, providing opportunities for educators to develop their own AI literacy and pedagogical capacity. It should also address equity concerns, ensuring that all students have access to AI tools and opportunities to develop AI literacy.

Policy development should be an inclusive and participatory process,

involving faculty, students, and other stakeholders. This participatory approach is essential for ensuring that policies are practical, legitimate, and responsive to the needs of those affected by them. It also helps to build a culture of shared responsibility for academic integrity, in which all members of the academic community understand and commit to upholding academic values.

Addressing the Equity Dimensions of AI Integration

The equity implications of AI integration demand explicit attention from policymakers and institutional leaders. The finding that socioeconomic factors shape AI engagement suggests that without deliberate intervention, AI may exacerbate existing educational inequalities. This is a particularly significant concern in Pakistan, where significant disparities in educational quality and access already exist.

Addressing the equity dimensions of AI integration requires a multi-faceted approach. At the infrastructure level, investment in digital connectivity and devices is necessary to ensure that all students have access to AI tools. At the pedagogical level, attention to inclusive teaching practices can ensure that all students have opportunities to develop AI literacy. At the policy level, explicit attention to equity in AI frameworks can ensure that the benefits of AI are distributed fairly and that the risks do not fall disproportionately on disadvantaged populations.

The gender dimension of AI engagement is particularly noteworthy. The finding that male students demonstrate greater engagement with AI technologies suggests that AI may reinforce existing patterns of gender inequality in education and technology. Addressing this requires

attention to the factors that shape gender differences in AI engagement, including social norms, educational experiences, and access to role models. It also requires deliberate efforts to engage female students with AI, including targeted outreach and support programmes.

Conclusion

The integration of generative artificial intelligence into Pakistani higher education presents both significant opportunities and substantial challenges that demand thoughtful, evidence-based responses from educators, institutional leaders, and policymakers. This paper has examined the intersection of AI literacy and academic integrity within this context, revealing a complex landscape characterised by moderate levels of student AI literacy, significant integrity challenges, evolving institutional responses, and persistent equity concerns.

The central argument of this paper is that effective engagement with generative AI requires a fundamental reimagining of pedagogical practice, assessment design, and institutional governance. Rather than viewing AI as either a threat to be contained or a solution to be embraced, educational stakeholders must develop the capacity to work with these technologies in ways that amplify human potential, cultivate critical consciousness, and prepare students for a future in which AI will be an ubiquitous presence. This requires a shift from reactive risk-mitigation to proactive, pedagogically informed integration.

The findings have significant implications for practice and policy. For educators, the imperative is to develop their own AI literacy and pedagogical capacity, to redesign assessment in ways that are

resilient to AI misuse, and to guide students in effective and ethical AI use. For institutional leaders, the imperative is to develop clear policies and provide support for faculty and students, to invest in professional development and infrastructure, and to attend explicitly to the equity implications of AI integration. For policymakers, the imperative is to develop comprehensive frameworks that address AI literacy, academic integrity, and equity, and to ensure that these frameworks are translated into effective practice through investment and support.

The challenge of AI in education is not merely technical but fundamentally pedagogical and ethical. It requires us to ask what we value in education, what kind of graduates we wish to produce, and what kind of society we wish to build. In a context where AI can perform many of the tasks that have traditionally been the focus of education, the distinctive value of higher education lies in its capacity to cultivate the human capabilities that AI cannot replicate: critical thinking, creativity, ethical reasoning, and the capacity for meaningful

human connection. The task before us is to harness AI in service of these enduring educational values, ensuring that technology serves human flourishing rather than diminishing it.

Looking forward, the development of AI in education will continue to accelerate, with new capabilities and applications emerging regularly. Pakistan's higher education system must be prepared to adapt to this dynamic landscape while maintaining a steadfast commitment to quality, integrity, and equity. This requires ongoing policy development, investment in capacity, and attention to the social and ethical dimensions of AI integration. It also requires a commitment to learning from international experience while developing responses that are appropriate to Pakistan's specific context. Ultimately, the success of AI integration in Pakistani higher education will be measured not by technological adoption alone but by whether it contributes to a more equitable, inclusive, and transformative educational experience for all students.

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