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BALANCING ACADEMIC INTEGRITY AND THE USE OF AI TOOLS IN POSTGRADUATE RESEARCH IN NIGERIA

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Abstract
Artificial Intelligence (AI) is transforming postgraduate research in Nigeria by enhancing efficiency, creativity, and access to vast information resources. From literature review automation to data analysis and academic writing support, AI tools have redefined research productivity. However, their unregulated use poses significant ethical challenges that threaten the foundational principles of academic integrity, originality, and authorship. This paper critically examines the implications of AI adoption in postgraduate research, focusing on the ethical gaps within Nigerian higher education institutions. Drawing on the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB), the study employs a conceptual and analytical approach supplemented by exploratory evidence from Nigerian postgraduate contexts. Findings reveal a growing dependence on AI applications without corresponding institutional frameworks to regulate their ethical use. This imbalance risks academic misconduct, plagiarism, and loss of research credibility. The paper proposes an Ethical AI Governance Framework designed to guide responsible AI integration across postgraduate programmes. The framework emphasises disclosure, accountability, transparency, and moral responsibility in research processes. It further advocates for AI literacy, supervisor training, and institutional policy reform to ensure that AI complements rather than compromises human intellect. The study concludes that aligning innovation with ethical governance is essential for sustaining academic trust, originality, and the global credibility of Nigerian postgraduate research.
Keywords: Artificial Intelligence, Academic Integrity, Postgraduate Research, Ethical Governance, Higher Education, Nigeria, AI Ethics

Introduction

Artificial Intelligence (AI) has become a transformative force in higher education, redefining how postgraduate students conceptualise, conduct, and present research. Across the globe, AI-powered tools such as ChatGPT, Grammarly, Scite, and Elicit are being utilised for literature synthesis, data interpretation, plagiarism detection, and linguistic refinement (UNESCO, 2021; University of Cambridge, 2023). These tools are underpinned by large language models (LLMs) that process and generate human-like text, thereby enhancing academic efficiency and research quality.

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In advanced academic environments such as Stanford University and the University of Cambridge, institutional frameworks have been established to guide responsible AI use in teaching and research (Stanford HAI, 2022; University of Cambridge, 2023). These developments highlight the dual nature of AI: it is both an enabler of innovation and a disruptor of traditional academic norms.

In Nigeria, postgraduate students increasingly rely on AI tools for idea generation, paraphrasing, and thesis writing due to easy access to free or low-cost AI platforms (Okafor & Eze, 2024). However, most Nigerian higher education institutions lack comprehensive ethical frameworks governing AI use, leading to potential breaches of academic integrity, such as plagiarism, authorship misrepresentation, and unacknowledged automation (Olanrewaju & Obinna, 2023).

Thus, the challenge lies in **balancing technological innovation with academic integrity**. This paper explores how Nigerian postgraduate students can ethically adopt AI tools within regulated institutional frameworks, ensuring that innovation complements, rather than compromises, intellectual honesty.

Problem Statement

The integration of AI tools in postgraduate research in Nigeria has outpaced the development of ethical and policy frameworks to regulate their use. While AI applications enhance efficiency in literature review and academic writing, they blur the lines between human authorship and machine assistance. This ambiguity undermines originality, intellectual property, and the foundational values of academic honesty (ICAI, 2020).

Existing policies, such as plagiarism checks through Turnitin, are inadequate in detecting AI-generated text (NUC, 2024). Consequently, postgraduate students often engage AI systems for idea generation and paraphrasing without disclosing such use (Adebayo, 2024). Supervisors and academic committees also lack the technical competence to verify AI-aided research outputs.

The absence of AI ethics policies, training, and monitoring structures has created a regulatory vacuum that threatens research credibility and academic reputation. This study therefore investigates ethical, institutional, and behavioural frameworks for governing AI use in Nigerian postgraduate research.

Aim and Objectives of the Study

To evaluate how Artificial Intelligence (AI) tools can be ethically integrated into postgraduate research in Nigeria while maintaining academic integrity.

Specific Objectives

1. Assess the level of AI adoption among postgraduate students in Nigerian universities and polytechnics.
2. Identify the ethical and integrity challenges associated with AI-assisted research.
3. Evaluate institutional preparedness and existing policies for AI governance.

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4. Analyse behavioural factors influencing ethical AI use through established theoretical models.
5. Propose a governance and policy framework to ensure ethical AI integration in postgraduate research.

Significance of the Study

This study is significant for several reasons:

1. It provides a conceptual foundation for developing AI ethics policies within Nigerian higher education institutions.
2. It enhances understanding of behavioural and attitudinal dynamics influencing AI use among postgraduate students.
3. It supports policymakers, supervisors, and researchers in designing institutional AI governance frameworks.
4. It contributes to the global discourse on responsible AI adoption in higher education, contextualised within the Nigerian academic system.

Scope of the Study

The study focuses on postgraduate students in Nigerian universities, examining their use of generative and assistive AI tools such as ChatGPT, Grammarly, Elicit, and Quill Bot. The conceptual scope encompasses ethical, behavioural, and institutional dimensions of AI use, rather than the technical mechanisms of AI development.

Conceptual/Theoretical Framework

This study is conceptually anchored on two interrelated models that explain how individuals adopt, utilise, and ethically interact with emerging technologies namely, the **Technology Acceptance Model (TAM)** by Davis (1989) and the **Theory of Planned Behaviour (TPB)** by Ajzen (1991). Both frameworks provide theoretical insights into how postgraduate students in Nigeria perceive, accept, and regulate the use of Artificial Intelligence (AI) tools in research. Together, they illuminate the cognitive, behavioural, and ethical factors that influence technology-driven decision-making within academic contexts.

Technology Acceptance Model (TAM)

The **Technology Acceptance Model (TAM)** was proposed by **Fred Davis (1989)** to explain the determinants of technology acceptance and usage behaviour. According to the model, two core beliefs influence users' acceptance of new technology:

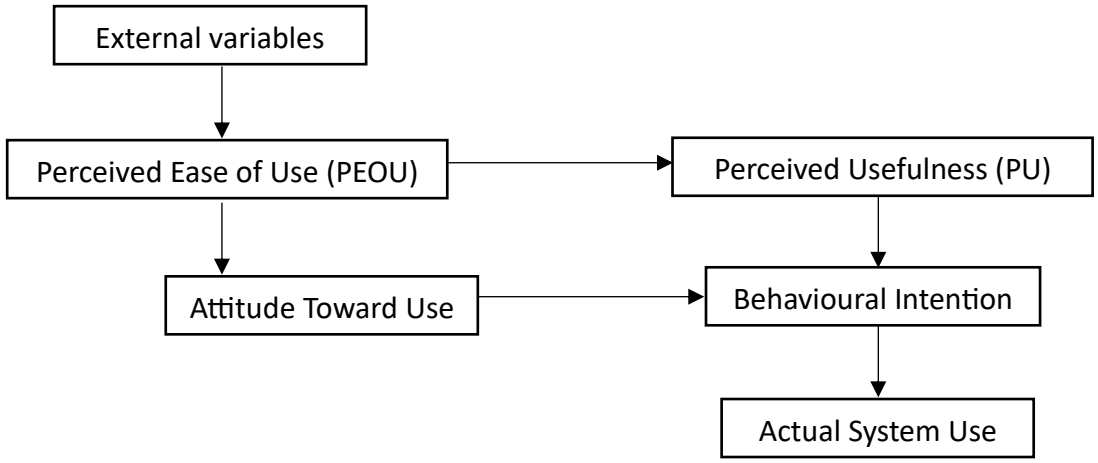
- **Perceived Usefulness (PU):** the degree to which an individual believes that using a particular technology will enhance their performance or productivity.
- **Perceived Ease of Use (PEOU):** the degree to which an individual believes that using the technology will be free from effort or difficulty.

These perceptions collectively shape the **attitude** of the user toward the technology, which subsequently influences their **behavioural intention to use** and ultimately, the **actual system usage**.

In the context of **postgraduate research**, TAM provides a robust framework for understanding why students increasingly adopt AI tools such as **ChatGPT, Paper Pal, Grammarly, and Elicit** for academic writing, summarisation, and paraphrasing. Students who perceive AI tools as useful for improving writing quality, reducing time spent on literature review, and assisting with data analysis are more likely to integrate them into their research workflow. Similarly, if these tools are easy to use and accessible (high PEOU), postgraduate researchers will exhibit a positive attitude and stronger intention toward sustained use (Okafor & Eze, 2024).

However, in the absence of institutional guidelines, these same perceptions of usefulness and ease of use may inadvertently encourage **overreliance on AI**, leading to **ethical dilemmas** related to authorship, originality, and intellectual honesty. Thus, while TAM explains the adoption dynamics of AI tools, it must be complemented with ethical constructs to account for responsible use.

Figure 1: Technology Acceptance Model (adapted from Davis, 1989)



Theory of Planned Behaviour (TPB)

The **Theory of Planned Behaviour (TPB)**, developed by **Ajzen (1991)**, extends the Theory of Reasoned Action (TRA) by introducing an additional determinant **Perceived Behavioural Control (PBC)** to explain how attitudes and social influences predict deliberate human behaviour. TPB posits that **behavioural intention** (the motivation to perform a behaviour) is influenced by three major constructs:

1. **Attitude toward the Behaviour (ATB):** the degree to which a person has a favourable or unfavourable evaluation of performing the behaviour.
2. **Subjective Norms (SN):** the perceived social pressure from significant others (e.g., peers, supervisors, or institutional authorities) to perform or refrain from a behaviour.
3. **Perceived Behavioural Control (PBC):** the perceived ease or difficulty of performing the behaviour, which reflects past experiences and anticipated constraints.

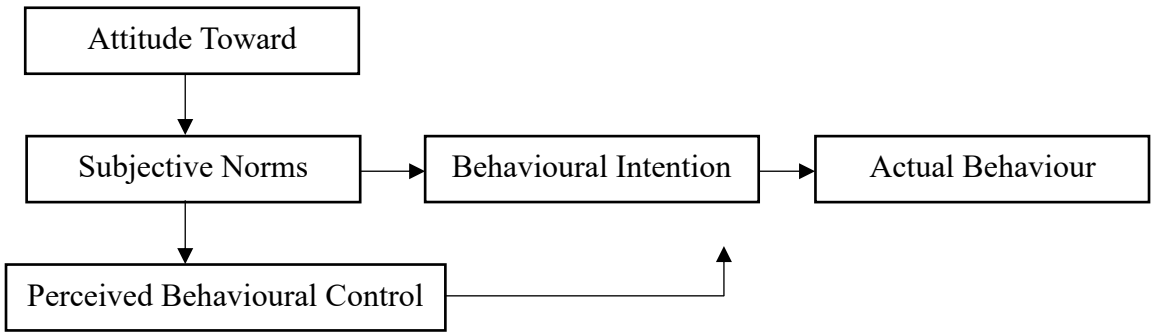
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In postgraduate research, **TPB provides a behavioural-ethical lens** for understanding how students make moral choices regarding AI use. For instance:

- **Attitude** reflects how positively or negatively students view AI tools—whether as legitimate aids that foster innovation or as shortcuts that compromise academic integrity.
- **Subjective Norms** represent the influence of peer expectations, supervisor guidance, or institutional culture on acceptable AI practices. When supervisors endorse transparent AI use, students are more likely to adopt ethical practices.
- **Perceived Behavioural Control** denotes students' perceived ability to use AI responsibly such as verifying AI-generated outputs, citing assistance, and adhering to institutional ethics policies.

Thus, TPB not only explains behavioural intention to use AI but also highlights **ethical self-regulation**, showing that a student's decision to use AI ethically or unethically is shaped by both internal beliefs and external pressures (Olanrewaju & Obinna, 2023).

Figure 2: Theory of Planned Behaviour (adapted from Ajzen, 1991)



Integrating TAM and TPB for Ethical AI Use in Research

When combined, **TAM** explains the *technological acceptance* dimension, while **TPB** captures the *ethical and behavioural* dimension of AI use. The integration of these models provides a comprehensive understanding of how **postgraduate students' acceptance, motivation, and ethical consciousness** interact to shape AI adoption patterns.

In the Nigerian context, this integration helps explain why many students adopt AI tools enthusiastically (driven by usefulness and ease of use), yet struggle with ethical compliance (influenced by attitudes, norms, and behavioural control). Therefore, a **Technology–Ethics Integration Model (TEIM)** can be developed to guide future institutional policy—emphasising responsible adoption, transparent disclosure, and academic integrity.

Ethical Implications of AI Use in Postgraduate Research

The increasing reliance on Artificial Intelligence (AI) in postgraduate research has introduced both opportunities and ethical challenges. While AI enhances efficiency, accuracy, and creativity, it simultaneously raises questions about authenticity, accountability, and intellectual honesty. These ethical implications are particularly critical in Nigeria, where

institutional frameworks guiding AI use remain underdeveloped, and students' awareness of ethical standards is inconsistent (Okafor & Eze, 2024; Adebayo, 2024).

Ethical implications can be broadly categorised into **five interrelated dimensions**: plagiarism and originality, authorship and intellectual ownership, data integrity, misinformation and bias, and overreliance leading to cognitive erosion. Each of these dimensions affects the credibility and validity of postgraduate research outcomes.

Plagiarism and Originality

Plagiarism remains one of the most pressing ethical issues associated with AI use in academic research. Generative AI models, such as ChatGPT and Jasper, can produce grammatically sound and seemingly original text that may not be directly traceable to an existing source. This creates a **grey area between assisted authorship and automated plagiarism** (Olanrewaju & Obinna, 2023).

Postgraduate students may unknowingly or deliberately submit AI-generated text without proper acknowledgment, assuming that the absence of direct source duplication equates to originality. However, ethical research requires disclosure of all sources of intellectual input, including AI assistance (UNESCO, 2023). The **International Center for Academic Integrity (ICAI, 2020)** emphasises that academic honesty extends beyond avoiding word-for-word copying; it also involves transparency regarding the origin of ideas and the tools used in knowledge production.

Hence, institutions must develop **AI attribution and citation protocols**—similar to referencing software tools—to ensure that AI contributions are disclosed appropriately in research theses and publications.

Authorship and Intellectual Ownership

AI tools complicate traditional notions of authorship and intellectual property. Since AI lacks consciousness and moral agency, it cannot hold intellectual ownership or responsibility for its output. Nonetheless, when AI contributes significantly to the wording, structure, or analytical reasoning in a research document, determining the true author becomes complex (Holmes et al., 2021).

In the Nigerian postgraduate context, supervisors and assessors often struggle to discern between AI-assisted writing and original human effort. This raises ethical questions: *Who is the rightful author of AI-generated content?* and *Should AI be credited in the acknowledgment or methodology section?*

To maintain scholarly integrity, the **Committee on Publication Ethics (COPE, 2023)** recommends that AI-generated content should not be listed as an author but that its use should be transparently declared. Postgraduate researchers must take full responsibility for verifying and validating AI outputs before inclusion in their work.

Data Integrity and Fabrication

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AI-driven data analysis and predictive modelling offer valuable tools for quantitative and qualitative research. However, when improperly used, they may generate **fabricated or synthetic data** that do not reflect real-world conditions. For example, a postgraduate student may use AI to simulate survey data without conducting actual fieldwork, thereby violating the ethical principles of **authenticity, reproducibility, and scientific honesty** (Adebayo, 2024).

Such practices compromise the reliability of research findings and can mislead policy or scientific decisions. Ethical research demands that AI outputs be validated through **triangulation, human oversight, and methodological transparency**. Supervisors should insist on raw data disclosure and maintain a log of AI interactions during data analysis to ensure accountability.

Misinformation, Bias, and Epistemic Integrity

AI models are trained on vast datasets that may include **biased or inaccurate information**. Consequently, outputs generated by these systems may inadvertently propagate stereotypes, false information, or unverified claims (UNESCO, 2021). This presents a critical challenge to **epistemic integrity**—the trustworthiness and objectivity of knowledge.

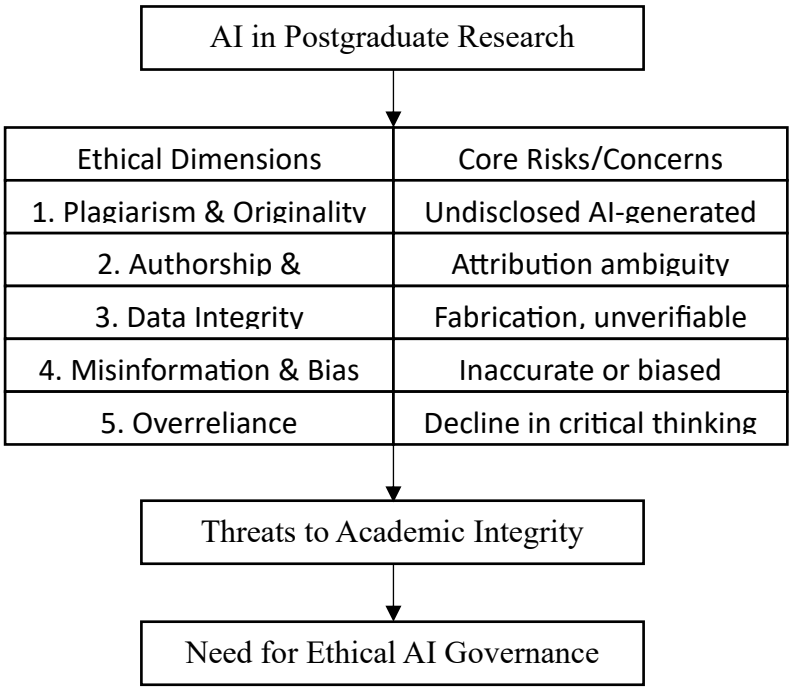
In postgraduate research, where factual precision and empirical accuracy are paramount, relying on AI without verification can distort academic arguments. For instance, an AI system may fabricate citations or misattribute sources ("AI hallucination"), leading to misinformation in research outputs. Ethical responsibility, therefore, requires that all AI-generated information be **cross-verified with peer-reviewed or authoritative academic sources** before inclusion in scholarly writing (Oni, 2023).

Overreliance and Cognitive Erosion

Another subtle but significant ethical implication is **overdependence on AI tools**, which can weaken students' critical thinking, analytical reasoning, and originality. As AI automates complex intellectual tasks, postgraduate researchers risk substituting human judgement with algorithmic convenience. Overreliance diminishes the student's ability to engage deeply with research problems and undermines the educational objective of developing independent scholars (Okafor & Eze, 2024).

From an ethical perspective, this cognitive erosion contravenes the principle of **intellectual development**, one of the core purposes of postgraduate education. Institutions must therefore encourage AI literacy that emphasises **augmentation rather than replacement** that is, using AI to enhance, not substitute, human intellectual effort.

Figure 3: Ethical Implications of AI Use in Postgraduate Research



Ethical challenges arising from AI use in postgraduate research are multidimensional and context-dependent. While AI offers immense potential to improve efficiency and innovation, its unregulated application risks undermining the **fundamental values of academic integrity—honesty, trust, fairness, respect, and responsibility (ICAI, 2020)**. To safeguard research credibility, Nigerian institutions must therefore implement clear AI-use policies, enforce ethical disclosure, and train both students and supervisors in responsible AI engagement.

Governance and Policy Framework for Ethical AI Integration in Postgraduate Research

The responsible integration of Artificial Intelligence (AI) into postgraduate research requires not only institutional ethics but also robust governance and policy mechanisms. In the Nigerian higher education context, such governance must balance innovation with integrity through multi-tiered regulation, institutional accountability, and capacity development. The proposed governance framework emphasises four interrelated levels of policy action—national, institutional, departmental, and individual researcher ethics.

National-Level Governance

At the national level, a unified policy direction is critical. Currently, while the National Universities Commission (NUC) and the National Board for Technical Education (NBTE) have established policies on plagiarism, none specifically address the ethical boundaries of AI-assisted research (NUC, 2024).

A **National AI Research Ethics Framework (NAIREF)** should be developed in collaboration with key stakeholders such as the Tertiary Education Trust Fund (TETFund), universities, and professional bodies. This framework should:

- Define what constitutes acceptable AI use in academic writing and research.

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- Specify disclosure standards for AI-generated or AI-assisted outputs.
- Establish national benchmarks for AI literacy and digital ethics training for postgraduate students.
- Encourage compliance through accreditation and quality assurance mechanisms.

This aligns with **UNESCO's (2021)** recommendation for ethical governance of AI in education, which emphasises transparency, inclusivity, and accountability in the deployment of digital technologies for learning and research.

Institutional Governance

At the institutional level, governance should focus on **policy formulation, awareness creation, and implementation**. Each university or polytechnic should develop an **Institutional Policy on AI Use in Research**, outlining:

- Approved AI tools and their permissible contexts of use.
- Disclosure requirements in theses, dissertations, and journal submissions.
- Ethical oversight committees responsible for monitoring compliance.
- Integration of AI ethics into postgraduate induction and research methodology curricula.

Furthermore, plagiarism detection units should be upgraded with **AI-detection algorithms** capable of distinguishing between human-authored and AI-generated text (Olanrewaju & Obinna, 2023). Supervisors should also be trained to interpret AI plagiarism reports critically, understanding both the capabilities and limitations of detection systems.

Departmental and Supervisory Oversight

Departments and research units act as the **first line of quality control**. Supervisors must guide students in the responsible use of AI tools, ensuring that assistance does not substitute for intellectual contribution. Regular departmental seminars on **AI ethics and academic writing** can foster a shared understanding of acceptable practices. Departments should also adopt checklists requiring students to declare whether AI tools were used and to what extent—similar to ethical clearance forms for research involving human participants.

Researcher-Level Responsibility

The final layer of governance lies with the **individual researcher**, whose moral judgement determines whether AI serves as a legitimate aid or a dishonest shortcut. Ethical awareness must, therefore, be internalised through continuous education and reflective practice. Students should adopt the **"Three Rs" principle of Responsible AI Use**:

1. **Recognise** – Acknowledge when and how AI is being used.
2. **Review** – Critically evaluate AI-generated content for bias, accuracy, and originality.
3. **Reveal** – Disclose AI assistance transparently in accordance with institutional and disciplinary standards.

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This principle operationalises the Ethical AI Integration Model (EAIM) by linking individual behaviour with institutional and national expectations.

Policy Implications

Implementing this governance framework will require collaboration between regulatory agencies, institutions, and digital research communities. Policymakers must recognise that ethical AI use is not merely a compliance issue but a pedagogical and cultural transformation within academia. Integrating AI literacy into national research policy and institutional curricula will help future researchers to innovate responsibly and ethically.

Discussion

The study reveals a widening and systemic gap between the rapid adoption of Artificial Intelligence (AI) tools and the slow development of ethical and regulatory mechanisms within Nigerian postgraduate research systems. While AI applications have been embraced for their ability to enhance productivity, writing accuracy, and data processing efficiency, institutional structures have not evolved at the same pace to address the complex ethical and epistemological issues that accompany their use. Most Nigerian universities still rely on general academic integrity guidelines developed before the advent of generative AI technologies such as ChatGPT, Elicit, or QuillBot. Consequently, there exists an ethical blind spot—where the use of AI-generated content, though not always malicious, remains unregulated, undocumented, and often misunderstood by both students and supervisors.

This regulatory lag has significant implications for academic credibility. The absence of clearly defined boundaries between acceptable assistance and unethical automation leads to practices that compromise originality and obscure authorship responsibility. For instance, some postgraduate students unknowingly present AI-generated analyses or literature reviews as their own intellectual effort, thereby violating principles of scholarly honesty and transparency. Over time, this undermines the validity of research outputs, reduces public trust in academic institutions, and threatens the international recognition of Nigerian degrees and scholarly publications.

Furthermore, the ethical risks extend beyond plagiarism. They include issues of data fabrication, algorithmic bias, and overreliance on machine intelligence at the expense of critical thinking and methodological rigour. AI's potential to generate false references, manipulate data patterns, or produce synthetic results challenges the credibility of research findings when not properly verified by human judgement. In this regard, ethical AI integration cannot be limited to compliance or detection; it must be embedded in a culture of academic accountability that prioritises human oversight, verification, and moral consciousness.

To close this gap, institutions must move beyond generic integrity policies and implement AI-specific ethical frameworks that explicitly define acceptable use, mandate disclosure of AI assistance, and provide guidelines for attribution and verification. Such frameworks should be informed by principles of transparency, fairness, accountability, and explainability (UNESCO, 2021). Moreover, there is a need for a paradigm shift in postgraduate education, where digital literacy is complemented by AI ethics literacy—training students and supervisors not only to

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use AI tools effectively but also to understand their ethical limitations and societal implications.

Ultimately, ethical AI integration requires a multidimensional approach encompassing technological literacy, moral awareness, and institutional responsibility. By embedding these principles into postgraduate research culture, Nigerian universities can ensure that AI serves as an enabler of intellectual advancement rather than a catalyst for ethical decline. In doing so, they will strengthen the credibility of national scholarship and position Nigerian research as globally competitive, ethically grounded, and technologically progressive.

Conclusion

Artificial Intelligence (AI) is reshaping postgraduate research practices in Nigeria, offering vast opportunities for innovation, efficiency, and knowledge advancement. Through tools that support data analysis, literature review, writing enhancement, and predictive modelling, AI has become integral to modern research. However, its unregulated use presents new ethical challenges that threaten the core principles of academic integrity, originality, and accountability.

If left unchecked, reliance on AI could erode scholarly credibility by blurring the boundaries between human and machine authorship, enabling subtle forms of plagiarism, and diminishing critical thinking skills. To safeguard research quality, Nigerian universities must establish **AI-**specific ethical governance frameworks that extend beyond traditional integrity policies. Such frameworks should clearly define acceptable uses of AI, mandate disclosure of AI assistance, and ensure that authorship and originality remain transparent and verifiable.

Achieving this balance requires collective action from researchers, supervisors, and policymakers. Institutions should integrate AI literacy and ethics training into postgraduate curricula, develop institutional policies that align with global best practices, and promote accountability in research supervision.

Ultimately, the future of postgraduate research in Nigeria depends on harmonising technological innovation with ethical integrity. When responsibly governed, AI can serve not as a threat to intellectual authenticity but as a catalyst for deeper creativity, credibility, and global research recognition.

Recommendations

1. Develop a National Policy on AI Ethics in Research under NUC and NBTE supervision.
2. Introduce AI Ethics and Integrity Training in postgraduate curricula.
3. Mandate AI Disclosure Statements in theses and journal submissions.
4. Train supervisors to detect unethical AI use and guide students in responsible adoption.
5. Encourage Nigerian universities to collaborate with international AI governance networks for policy benchmarking.

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