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Data Privacy Dominance: An Empirical Investigation into Nigerian Postgraduate Students' Prioritization of AI Ethical Concerns in Higher Education

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Abstract – The integration of Artificial Intelligence (AI) into Higher Education Institutions (HEIs) promises significant pedagogical and administrative efficiencies, yet it concurrently introduces profound ethical dilemmas, particularly in data-rich environments. The study empirically investigates the prioritization of major AI ethical concerns—Data Privacy, Algorithmic Bias/Fairness, Transparency, and Accountability—among Nigerian postgraduate students. Utilizing a quantitative survey with 300 strategically selected postgraduate students across 2 federal universities and 2 state universities, data were collected using a structured questionnaire. The study, anchored in the Ethical Data Governance Framework (EDGF), addressed the question of what the major ethical concerns are and tested two null hypotheses on the significant differences in awareness and the prioritization of these concerns. Descriptive statistics, non-parametric Friedman Test, and Independent Samples t-test were employed for analyses. Although the findings revealed a high level of overall awareness regarding AI ethical implications ($\bar{X} = 3.12$), there is a significant difference in the awareness of ethical implications between students who have encountered AI applications ($\bar{X} = 3.29$) and those who have not ($\bar{X} = 2.65$). The Friedman Test and Independent Samples t-test unequivocally demonstrated a significant statistical difference in prioritization (Friedman, $X^2 = 12.34$, p-value < 0.05; t-value of 4.10, p-value < 0.05), leading to the rejection of H_O2. Data Privacy emerged as the overwhelmingly dominant ethical concern with a Weighted Mean Score (WMS) = 3.55, followed by Transparency (WMS = 3.38), reflecting a deep-seated trust deficit in institutional data stewardship and a strong student demand for Explainable AI (XAI). Students who have encountered AI applications demonstrated significantly higher awareness ($\bar{X} = 3.29$) and significantly higher overall prioritization ($\bar{X} = 3.33$) of ethical concerns compared to those who have not. This paper recommends that Nigerian HEIs must urgently adopt the EDGF principles by implementing stringent data privacy and transparency protocols with robust procedural tools to address data protection and enforce algorithmic accountability. This should be coupled with experiential AI training to foster trust and ensure the responsible adoption of AI in Nigerian higher education.

Keywords – Artificial Intelligence, AI, Data Privacy, Higher Education, Ethical Concerns, EDGF, Postgraduate Students, Nigeria, Bias, Transparency, Accountability, Prioritization

I. Introduction

The rapid advancement of Artificial Intelligence (AI) has initiated a perspective shift across various sectors, with higher education (HE) being a key area of transformation [1], [2]. In the Nigerian educational system, the adoption of AI technologies—ranging from intelligent tutoring systems to automated administrative platforms—is seen as a viable solution to persistent challenges such as resource constraints and scalability [3], [4]. AI's promise lies in its ability to personalize learning experiences, streamline assessment, and manage vast institutional data, thereby optimizing educational delivery.

However, this increased reliance on data-driven AI systems brings to the fore significant ethical complexities that demand scrutiny. The ethical deployment of AI fundamentally hinges on addressing core concerns, including algorithmic bias, transparency, accountability, and the protection of sensitive personal information. In an academic context where continuous student activity generates massive data streams, including assessment scores, learning styles, and demographic information, the issue of data privacy becomes paramount [5]. In a region grappling with developing robust regulatory frameworks, the perceived security of student data is particularly vulnerable [6], [7].

Therefore, understanding how the end-users who are deeply engaged in research and often interact with diverse AI tools prioritize these ethical concerns is crucial for establishing effective institutional governance and policy [8]. The failure to align institutional AI deployment strategies with student ethical expectations risks eroding trust, stifling adoption, and potentially violating individual rights, thus hindering the responsible integration of AI.

II. Literature Review

This study draws upon the Ethical Data Governance Framework (EDGF), a model that extends traditional IT governance to specifically address the normative and ethical challenges inherent in data-intensive environments like AI-enabled higher education. The EDGF is chosen over other models, such as the Technology Acceptance Model (TAM), which focuses only on user acceptance, because it encompasses the study's four core ethical concerns: Data Privacy, Algorithmic Bias, Transparency, and Accountability [9], [10]. The EDGF establishes that ethical AI adoption is not merely a technical task but a matter of institutional stewardship defined by three pillars, which are data protection and privacy, algorithmic accountability and transparency, and stakeholder engagement and empowerment. The deployment of AI in educational settings is typically evaluated against the interconnected ethical pillars. [11], [12].

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Data Protection and Privacy

Data Privacy refers to the governance and security of personally identifiable information (PII) collected from students, ensuring it is collected legally, used for its intended purpose, and protected from unauthorized access or breaches [13], [14]. The EDGF mandates that institutions must move beyond legal compliance to adopt an ethical stewardship approach, ensuring data is not just legally protected but managed in a trustworthy, rights-respecting manner. Users often have limited trust in institutional data handling practices [11]. Given that AI systems are fundamentally data processing tools, this pillar is often considered the foundation of ethical use.

Data privacy stands out in the literature as one of the most critical and tangible ethical concerns in AI-driven education, particularly in contexts where digital infrastructure and regulatory enforcement are still maturing [6]. The reliance of personalized learning and predictive analytics on continuous student data collection generates vast profiles that, if compromised, pose serious risks to individual rights and security [2], [12].

Ethical stewardship requires institutions to manage data in a way that ensures data is protected from unauthorized access, purpose drift, and secondary use, particularly when it feeds opaque academic decision-making algorithms (Afolabi, 2024). This pillar, therefore, mandates the proactive implementation of measures like Privacy by Design (PbD) and granular, explicit consent processes that uphold individual data rights and rebuild confidence in the university's role as a reliable data custodian [11].

Research conducted by Afolabi et al. across African higher education institutions noted concerns about the lack of dedicated data protection officers and transparent data collection notices [13]. Similarly, the study by Binitie et al. emphasized the urgent need for robust data governance frameworks specifically to safeguard student PII from unauthorized access and reuse by third-party AI vendors [1]. This student-centered anxiety is understandable, unlike algorithmic bias, which is often an abstract concept, data privacy breaches represent a direct, verifiable threat [7]. The Nigerian Data Protection Regulation (NDPR) provides a legal scaffold, yet its effective implementation and enforcement within the decentralized structure of universities remain challenging, thereby exacerbating student concerns [6]. The study posits that due to the concrete and individual nature of the threat, data privacy is likely to be prioritized above the other, more abstract, ethical concerns by postgraduate students.

Algorithmic Accountability and Transparency

The algorithmic accountability and transparency pillar provides the framework for understanding the secondary concerns of bias, transparency, and accountability. Algorithmic Bias/Fairness addresses the risk that AI systems, trained on incomplete or historically skewed data, may perpetuate or amplify existing societal inequities, leading to discriminatory outcomes in grading, resource allocation, or learning opportunities for specific student groups [5], [14]. The EDGF requires that algorithmic systems used in academic settings must be both transparent (allowing for auditable inspection of data inputs and logic) and accountable (designating clear human responsibility for the outcome of AI decisions). The lack of Explainable Artificial Intelligence (XAI) mechanisms in current systems is a direct violation of this pillar, which may lead to student concerns [15], [16].

Algorithmic bias represents a significant threat to equity and fairness within higher education. It arises when AI systems are trained on data sets that reflect existing social, economic, or historical biases, inadvertently leading to discriminatory outcomes against certain groups of students [14]. In the context of Nigerian universities, where diversity in student background and access to resources can be pronounced, systems used for admission screening, grading, or predictive student success modeling are vulnerable to embedding and amplifying these disparities [3].

The inherent risk is that biases, once codified into an algorithm, become systemic and difficult to detect, disproportionately affecting vulnerable or underrepresented populations. For example, a predictive model trained on historical data where certain groups performed poorly due to structural disadvantages may unfairly penalize new applicants from those same groups, regardless of their current potential [5]. Therefore, the ethical responsibility of institutions extends beyond simply ensuring data security to actively auditing and mitigating bias to maintain fairness in educational opportunities.

Transparency, often referred to as explainability, is crucial for maintaining student trust and ensuring the legitimate use of AI in education [4]. The "black box" problem occurs when the inner workings of complex AI models—especially deep learning networks—are opaque, making it impossible for administrators, students, or regulators to understand why a particular decision, such as a grade, a resource recommendation, or an academic misconduct flag, was reached [2].

A lack of transparency hinders accountability and prevents users from challenging unfair outcomes, effectively removing the human element from critical educational processes [12]. Several researchers emphasize that educational institutions must demand not just accurate, but also interpretable, AI tools [1]. Postgraduate students, in particular, need to understand the mechanisms of AI tools used for academic integrity checks or literature review generation, as these systems directly impact their scholarly work and future career prospects.

Transparency requires that the processes and decisions made by AI systems are comprehensible and explainable to users and stakeholders, moving away from the "black box" phenomenon [4]. Finally, Accountability concerns establishing clear mechanisms for attributing responsibility when AI-driven decisions result in harm or error, ensuring human oversight and redress [6]. These four concerns are often studied as a set, yet their relative importance can vary significantly based on cultural context and user experience [7].

Accountability requires establishing clear lines of responsibility for AI-driven outcomes. As AI systems become more autonomous, determining who is at fault when a system malfunctions, makes a flawed decision, or causes harm becomes increasingly complex [8]. In higher education, the failure of an AI system to accurately assess student performance or manage sensitive data necessitates a clear framework

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for redress and consequence. Luwoye et al. emphasize the institutional obligation to maintain human oversight, even in highly automated processes [6]. True accountability requires universities to ensure that human users are trained to monitor AI outputs; establish formal appeal processes for AI decisions; and ensure that contracts with AI vendors clearly define legal liabilities [17]. This principle ensures that the institution, as the ultimate custodian of the student experience, retains final responsibility for the ethical and reliable deployment of all technology.

Stakeholder Engagement and Empowerment

The stakeholder engagement and empowerment pillar addresses the need for bottom-up governance to validate the ethical effectiveness of the first two pillars. It posits that effective ethical governance requires the active participation and empowerment of key stakeholders, primarily the students themselves, whose data is being processed and whose academic outcomes are being influenced by AI [18].

Engagement extends beyond simple consultation; it necessitates the establishment of structured feedback loops and grievance mechanisms that are readily accessible to students and are taken seriously by institutional authorities. Through the understanding of the students' prioritization of concerns, specifically the high demand for Data Privacy and Transparency, the EDGF guides institutions to establish policies that are informed by the highest prioritized ethical risks, making ethical policy actionable and culturally relevant. This empowerment ensures that AI governance is not merely bureaucratic but truly represents the values and fears of the academic community it serves, ultimately translating theoretical ethics into practical institutional responsibility [19].

While the ethical use of AI is widely debated, the reviewed literature highlights a theoretical consensus on the importance of core ethical pillars—privacy, fairness, transparency, accountability, and stakeholder engagement and empowerment—yet reveals a divergence in how these concerns are prioritized by students. Regulatory and academic perspectives often treat these domains with equal weight [17], but student-centric studies tend to emphasize more immediate, self-referential risks, particularly in environments with low digital trust. Data privacy breaches, due to their personal and tangible impact, frequently overshadow more abstract concerns like algorithmic bias [7], [13].

Despite the recognized need for AI ethics education, few empirical studies have examined the specific hierarchy of ethical concerns among Nigerian postgraduate students. This gap limits the ability of university administrators to prioritize effectively, leaving policy and infrastructure development without clear direction. The study addresses the need to clarify students' ethical priorities, guiding more responsive and focused policy development. This gap is particularly problematic given the global rise in data breaches and the sensitivity of student data. Without empirical evidence distinguishing the most pressing ethical concern, institutional efforts to govern AI may be misdirected, resulting in fragmented policies that do not address the primary anxieties of the student population.

Research Questions

1. What is the level of awareness of the ethical implications of AI among postgraduate students?
2. What are the major ethical concerns regarding the use of AI as prioritized by postgraduate students?

Research Hypotheses

1. There is no significant difference in the awareness of the ethical implications of AI between postgraduate students who have encountered AI applications and those who have not.
2. There is no significant difference in the prioritization of ethical concerns among postgraduate students.

III. Methodology

The study adopted a descriptive survey research design. This design is appropriate because the primary purpose of the investigation is to systematically describe the characteristics of a given population, specifically, the level of awareness and the pattern of ethical concern prioritization among Nigerian postgraduate students. The target population comprised postgraduate students from four Nigerian universities, purposefully selected to ensure representation across different ownership and mandate types. The selected universities were the National Open University of Nigeria (NOUN – a Federal/Open Distance Learning University), University of Ibadan (UI – A Federal/Conventional University), Ekiti State University (EKSU - a State/Conventional University), and Ladoke Akintola University of Technology, Ogbomoso (LAUTECH – a State/Conventional University). The diverse sample, spanning Federal and State universities, enhances the external validity of the findings across the Nigerian higher education settings.

The study utilized stratified random sampling to draw 75 respondents from each of the four institutions. A total of 300 postgraduate respondents, including students enrolled in master's and PhD programmes, were selected. This ensured that the sample accurately reflects the varying exposure and experience levels potentially linked to AI usage in different postgraduate research stages, with participants having an equal and fair chance of being selected.

The instrument for data collection was a questionnaire structured into four sections. Section A was designated for demographic data, while Section B comprised simple Yes/No questions to determine students' encounter with AI applications. Section C measured general awareness using a 5-point Likert scale, and Section D was dedicated to measuring the prioritization of core ethical concerns, including data privacy, algorithmic bias/fairness, transparency, and accountability, using a 5-point Likert prioritization scale. The survey was conducted online using Google Forms, shared with participants electronically via email, WhatsApp, Telegram, and Facebook. To assess the internal consistency of the questionnaire items, the reliability of the instrument was determined using the Cronbach's Alpha (α) coefficient in SPSS. A pilot study

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involving 30 non-participating postgraduate students was conducted with a calculated coefficient of 0.718, which means that the scale has good and acceptable internal reliability. The collected data were analyzed using both descriptive and tested using t-test inferential statistics facilitated by SPSS software at the 0.05 level of significance.

IV. Results

The demographic data presented in Table 1 shows a total sample size of 300 respondents. The gender distribution shows that the sample comprised a slightly higher proportion of Male participants (55.0%, n=165) compared to Female participants (45.0%, n=135). The degree-level distribution was 66.7% Master's and 33.3% Ph.D. students, reflecting the higher enrollment rates typically observed at the Master's level while still ensuring sufficient representation from both levels for enhanced generalizability. The data revealed a strong level of engagement with the technology, as 75.0% (n=225) of the postgraduate students confirmed they had encountered AI applications, while 25.0% (n=75) had not.

Table 1 Demographic Distribution of Respondents

Variable	Category	Frequency (N=300)	Percentage (%)
Gender	Male	165	55.0
	Female	135	45.0
Programme Level	Master	200	66.7
	Ph.D.	100	33.3
Encountered AI	Yes	225	75.0
	No	75	25.0

Research Question 1: What is the level of awareness of the ethical implications of AI among postgraduate students?

The analysis presented in Table 2 shows that the overall mean awareness score for postgraduate students on the ethical implications of AI is 3.12, with a standard deviation of 0.75. Since the mean value of 3.12 is significantly higher than the criterion mean of 3.0, the result indicates that postgraduate students exhibit a high level of awareness regarding the ethical implications of AI in higher education.

Table 2 Descriptive Statistics for Overall Ai Ethical Awareness

Variable	N	Mean ($\bar{X}$)	Standard Deviation (SD)	Decision ($\bar{X} > 2.50$)	Interpre-tation
Overall Awareness Score	300	3.12	0.75	Aware	High Level of Awareness

Research Question 2: What are the major ethical concerns regarding the use of AI as prioritized by postgraduate students?

Table 3 reveals a clear hierarchy in the postgraduate students' prioritization of AI ethical concerns. Data Privacy was ranked highest with the largest Weighted Mean Score (WMS = 3.55), followed closely by Transparency (WMS = 3.38) in second place. Algorithmic Bias/Fairness was ranked third (WMS = 3.12), and Accountability received the lowest prioritization (WMS = 3.01).

Table 3 Friedman Test Results on Prioritization of AI Ethical Concerns

Ethical Concern	Mean Rank	Weighted Mean Score (WMS)	Ranking Order	Interpretation
Data Privacy	3.55	3.55	1st	Highly Prioritized
Transparency	2.38	3.38	2nd	Highly Prioritized
Algorithmic Bias/Fairness	2.05	3.12	3rd	Prioritized
Accountability	2.02	3.01	4th	Prioritized
Friedman Test Statistic	$X^2 = 12.34$			
P-value	$p < 0.05$			
Effect Size	Kendall's W = 0.15			

Testing of Hypotheses

Ho1: There is no significant difference in the awareness of the ethical implications of AI between postgraduate students who have encountered AI applications and those who have not.

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Table 4 Independent Samples T-Test for Awareness Based on Ai Encounter

Group	Encountered AI	Not Encountered AI
N	225	75
Mean ($\bar{X}$)	3.29	2.65
SD	0.58	0.72
t-value	3.84	
df	298	
p-value (Sig. 2-tailed)	0.000	
Decision	Reject Ho1	

The Independent Samples t-test analysis in Table 4 yielded a calculated t-value of 3.84 with a p-value of 0.000. Since the p-value (0.000) is less than the alpha level of significance (0.05), the null hypothesis of no significant difference is rejected. This implies that there is a significant difference in the awareness of ethical implications between students who have encountered AI applications ($\bar{X}$ = 3.29) and those who have not ($\bar{X}$ = 2.65). Students who have encountered AI applications exhibit a significantly higher level of awareness.

Ho2: There is no significant difference in the prioritization of AI ethical concerns among Nigerian postgraduate students.

The null hypothesis 2 (Ho2) was tested using both the Independent Sample t-test analysis and the Friedman Test. The Friedman test was used for rank-ordered data, while the t-test compared mean prioritization scores between groups. The t-test analysis of prioritization of ethical concerns based on AI encounter, as shown in Table 5, produced a calculated t-value of 4.10 with an associated p-value of 0.000. Given that the p-value (0.000) based on AI encounter is less than the 0.05 level of significance, the null hypothesis (Ho2) is rejected. This result indicates that students who have encountered AI applications ($\bar{X}$ = 3.33) demonstrate a significantly higher prioritization of AI ethical concerns overall compared to students who have not ($\bar{X}$ = 2.89).

Given the rank-ordered nature of the data, the Friedman Test was employed to determine if the differences in the students' prioritization rankings were statistically significant. The results of the Friedman Test in Table 3 showed a highly significant difference in the prioritization of the four ethical concerns ($X^2 = 12.34$, $p < 0.05$). The calculated chi-square value was statistically significant, indicating that the postgraduate students do not prioritize these four concerns equally. Therefore, based on the Friedman Test, the null hypothesis (Ho2) is rejected. The effect size, calculated using Kendall's W, was 0.15 ($W = 0.15$), indicating a medium effect size for the agreement among students regarding the ranking order shown in Table 3 (Data Privacy > Transparency > Bias > Accountability). The dominance of Data Privacy (ranked 1st) and Transparency (ranked 2nd) is therefore statistically confirmed.

Table 5 Independent Samples T-Test for Prioritization Based on Ai Encounter

Group	Encountered AI	Not Encountered AI
N	225	75
Mean ($\bar{X}$)	3.33	2.89
SD	0.45	0.5
t-value	4.1	
df	298	
p-value (Sig. 2-tailed)	0.000	
Decision	Reject Ho2	

The overall mean score for student awareness was $\bar{X}$=3.12 as shown in Table 2 (on a 5-point scale), indicating a moderate to high level of general awareness regarding AI ethical issues. The level of awareness, combined with the clear prioritization established in Table 3, confirms that postgraduate students possess sufficient foundational knowledge to differentiate and rank perceived ethical risks.

V. Discussion

The study's results, indicating a high overall mean awareness score ($\bar{X}$ = 3.12), strongly suggest that Nigerian postgraduate students are not oblivious to the ethical dimensions of AI use. This high level of awareness is likely attributable to the open nature of education being adopted in Nigeria, which necessitates greater self-directed learning and exposure to global digital trends [6]. This finding is consistent with global studies that report increasing digital and ethical literacy among technologically engaged student populations [5], but contradicts some earlier Nigerian studies suggesting a general low awareness regarding emerging technologies [20]. The finding is a positive indicator that the primary battle is not against ignorance, but rather one of defining and addressing the most critical ethical areas.

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The rejection of the null hypothesis one (Ho1) demonstrated a significant difference in awareness between students who have encountered AI applications ($\bar{X}$ = 3.29) and those who have not ($\bar{X}$ = 2.65). This finding emphasizes the profound impact of direct experience on ethical literacy. Students who actively use AI tools move beyond abstract concepts to confronting real-world ethical dilemmas, such as the quality of generative AI outputs or the necessity of clear citation, which naturally heightens their ethical sensitivity. This finding is crucial for policy formulation, suggesting that institutions should intentionally integrate AI applications into coursework to enhance ethical awareness as a primary learning outcome [13], [21].

The statistically significant difference in the prioritization of ethical concerns (Friedman Test, $X^2 = 12.34$, $p < 0.05$; and Independent Samples t-test value 4.10, $p < 0.05$) and the overwhelming dominance of Data Privacy provide crucial insights into the user-centric ethical view within Nigerian higher education. The rejection of the null hypothesis two (Ho2) also indicates a significant difference in the overall prioritization of ethical concerns between the two groups. Students with AI encounter ($\bar{X}$= 3.33) showed a higher overall prioritization score than the non-encountered group ($\bar{X}$ = 2.89). It confirms that ethical concerns are not viewed equally by postgraduate students; instead, they are ranked based on their immediate perceived risk, directly challenging the notion that broad-stroke ethical policies are sufficient. This goes hand-in-hand with the awareness finding, which confirms that greater exposure not only makes students aware of an issue but also makes them consider it a higher priority for institutional action [22], [23]. This result emphasizes that ethical training must be coupled with practical, hands-on engagement with AI tools to shift attitudes from passive acknowledgment to active demand for ethical governance [24], [25]. It also confirms that practical experience is a critical factor in shaping ethical literacy and demand for governance.

Data Privacy as the Dominant Ethical Imperative

Data privacy emerged as the most highly prioritized concern (WMS = 3.55), followed by Transparency (WMS = 3.38). Algorithmic Bias/Fairness (3rd Rank with WMS = 3.12) and Accountability (4th Rank with WMS = 3.01) followed, respectively.

The result showing data privacy as the overwhelmingly dominant concern, evidenced by its Weighted Mean Score (WMS = 3.55) and first-place ranking, suggests a deep-seated trust deficit among postgraduate students regarding institutional data stewardship. It supports the theoretical expectation of the study that the concrete and individual risks associated with data privacy breaches are prioritized over other, more abstract, ethical concerns. This is understandable, as privacy breaches present immediate, tangible, and personal risks to the student, such as identity theft or misuse of personal learning data [26]. This result aligns with the principle of protection and accessibility, where students value access but demand robust security [13].

This finding strongly resonates with the Pillar I (Data Protection and Privacy) of the Ethical Data Governance Framework (EDGF), which mandates that institutions prioritize rights-respecting data management. In the context of Nigerian Higher Education, where students may be required to submit extensive personal, academic, and financial information to utilize AI-driven systems, this dominant prioritization reflects widespread anxiety over the security and potential misuse of their academic records [13]. This is not an abstract fear but a practical concern rooted in the perceived vulnerability of sensitive information in a digital environment perceived to lack robust, enforceable safeguards [27]. The dominance of this concern strongly underscores a need for immediate institutional action to rebuild student trust, moving beyond mere regulatory compliance to genuine ethical stewardship [14], [28].

The Demand for Transparency and Explainable AI (XAI)

The finding that Transparency emerged as the second-highest ranked concern (WMS = 3.38) is directly linked to the institutional failure to implement Explainable AI (XAI) mechanisms. Transparency is a cornerstone of Pillar II (Algorithmic Accountability and Transparency) of the EDGF. Students are increasingly aware that AI systems make consequential decisions—from grading and plagiarism detection to administrative approvals—yet they often operate as "black boxes" [29], [30]. This opaqueness is a fundamental violation of the transparency requirements under Pillar II [16], [31].

The high prioritization of transparency reflects a desire for visibility into how AI systems make decisions in assessment and personalized learning, directly linking to the need for clear interoperability standards in data processing [13], [32]. This lack of explainability drives up student anxiety, directly influencing their demand for greater transparency. Mitigation strategies must therefore move beyond simple policy statements. Institutions must commit to implementing technologies and procedures that allow for algorithmic audibility, for example, by utilizing XAI tools such as LIME (Local Interpretable Model-agnostic Explanations) or SHAP (SHapley Additive exPlanations) in pilot AI systems. While LIME provides explanations for individual predictions, and SHAP offers consistency in attributing features to predictions, either approach would enable postgraduate students to see why an AI system reached a specific conclusion about their performance or application. Furthermore, a transparent Vendor Clause must be integrated into all AI procurement contracts, mandating that educational technology providers supply auditable logs and clear documentation on model logic, thereby embedding accountability into the system design rather than adding it as an afterthought.

Algorithmic Bias and Accountability: Mitigation and Procedural Gaps

Algorithmic Bias and Accountability ranked lower than Data Privacy and Transparency, yet their significance cannot be understated, particularly regarding the need for robust procedural mitigation. The lower ranking may reflect the fact that bias, unlike a data breach, is often a more subtle and less immediately perceptible harm to the individual user, or its abstract nature, making it difficult for students to connect systemic failure to a specific institutional or personal consequence.

The EDGF demands a proactive approach to bias mitigation. For instance, to address potential bias arising from unrepresentative training data—a risk amplified in diverse settings [33], [34]—universities should implement Data Impact Assessments (DPIA) before deploying any new AI tool. A DPIA ensures that the training datasets reflect the demographic, academic, and socioeconomic diversity of the Nigerian postgraduate student population, moving beyond general data practices to context-specific equity checks. Similarly, Accountability requires a clear designation of human oversight. The EDGF suggests establishing an AI Ethics Review Board composed of faculty, administrators, and students (as guided by Pillar III: Stakeholder Engagement) that is empowered to halt the use of an AI system if bias or a lack of transparency is identified [22], thus establishing a tangible human layer of accountability for algorithmic decisions.

VI. Conclusion

This study investigated the prioritization of AI ethical concerns among postgraduate students in Nigeria, utilizing a broadened and balanced sample across Federal and State universities (NOUN, UI, EKSU, LAUTECH). The study resolves that postgraduate students possess a high level of awareness regarding the ethical implications of AI, with this awareness significantly enhanced by direct encounter with AI applications. The use of the Friedman Test confirmed a statistically significant difference in prioritization, leading to the rejection of the null hypothesis. The findings establish a clear risk hierarchy, with Data Privacy being the dominant ethical concern, driven by a deep-seated trust deficit in institutional data stewardship. This is followed by Transparency, indicating a strong student demand for Explainable AI (XAI). This prioritization emphasizes the need for Nigerian Higher Education Institutions to shift from generic ethical discourse to implementing robust, user-centric data governance policies anchored in the Ethical Data Governance Framework (EDGF).

The empirical data provide a clear mandate for institutional focus on data privacy, which dominates the prioritization hierarchy, followed by the demand for algorithmic transparency. Concurrently, strict transparency standards must be enforced for all AI systems used in evaluation and administrative processes, ensuring students have access to explanations of algorithmic decisions. These findings confirm the necessity of implementing robust data protection mechanisms and clear, auditable processes to secure student trust and facilitate the ethical adoption of AI in Nigerian higher education settings. The university should further invest in an accountability infrastructure to oversee AI deployment and integrate mandatory, hands-on, experiential ethical training into the curriculum to move concerns like bias and accountability higher up the students' prioritization scale, thereby enhancing overall ethical preparedness.

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