Scholarly Communication in the Era of Generative AI: A Threat or an Opportunity for Nigerian Academics?

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ABSTRACT
The rapid proliferation of Generative Artificial Intelligence (GenAI) has significantly transformed scholarly communication globally. However, limited empirical evidence exists regarding its implications within Nigerian academia. This study investigates the awareness, utilization, perceived benefits, and challenges of GenAI among Nigerian academics. A quantitative descriptive survey design was employed, with data collected from 114 academics across various higher education institutions in Nigeria. Both descriptive and inferential statistical techniques were used for analysis. Descriptive statistics revealed high awareness and adoption of text-based GenAI tools, particularly for writing-related tasks. Inferential analysis further demonstrated that awareness level and internet reliability significantly influence the frequency of GenAI use ($p < 0.05$), while academic rank has no significant effect. Analysis of variance (ANOVA) revealed that perceived benefits of GenAI vary significantly with awareness levels, while perceived challenges remain consistently high across all groups. The findings indicate that GenAI adoption among Nigerian academics is driven primarily by awareness and infrastructural conditions rather than hierarchical factors. While GenAI enhances research efficiency and accessibility, concerns related to academic integrity, over-reliance, and data privacy persist universally. The study concludes that GenAI presents both opportunities and risks, requiring institutional policies, training, and infrastructure development to ensure responsible integration into scholarly communication.

Keywords
Scholarly Communication, Generative AI, Nigerian Academics, Artificial Intelligence, Academic Integrity.

1. INTRODUCTION
The proliferation of Generative Artificial Intelligence (GenAI), particularly Large Language Models (LLMs) such as ChatGPT, has significantly transformed various aspects of academic practice in recent years [1]. These AI-powered tools, capable of generating text, summarizing literature, facilitating data analysis, and supporting writing processes, are increasingly embedded in scholarly communication systems. As a result, GenAI is reshaping how knowledge is produced, disseminated, and evaluated within academic communities.

On one hand, proponents of GenAI emphasize its potential to enhance research efficiency, improve accessibility, and foster innovation in scholarly work [2]. By automating routine tasks such as drafting, editing, and information retrieval, these tools enable researchers to focus on higher-order cognitive activities. Furthermore, GenAI holds promise for democratizing knowledge production by providing support to academics with varying levels of resources and linguistic proficiency.

On the other hand, critics raise concerns about the implications of GenAI for academic integrity, authorship, and critical thinking [3]. The increasing reliance on AI tools introduces questions regarding originality, accountability, and the authenticity of scholarly output. Additionally, issues such as algorithmic bias, data privacy, and the potential erosion of independent analytical skills present significant challenges to the ethical use of GenAI in academia.

In the context of Nigerian higher education, these opportunities and challenges are further shaped by systemic constraints such as limited infrastructure, inadequate institutional policies, and unequal access to digital resources. Despite growing global interest in GenAI, limited empirical evidence exists on its adoption and implications within Nigerian academia [4]. Most existing studies either focus on student populations or broader international contexts, leaving a gap in understanding how academics in Nigeria engage with these technologies.

This study therefore investigates the awareness, utilization, perceived benefits, and challenges of GenAI among Nigerian academics. By integrating both descriptive and inferential statistical approaches, the study provides a comprehensive evaluation of the factors influencing GenAI adoption and contributes to ongoing discourse on responsible AI integration in scholarly communication.

2. LITERATURE REVIEW
2.1 Types of Generative AI Available for Academics in Scholarly Communication
Generative Artificial Intelligence (GenAI) tools relevant to scholarly communication can be categorized into five major types.

First, Large Language Models (LLMs), which represent the most widely recognized category, include systems such as ChatGPT, Google Gemini, and Claude. These tools are capable of generating, paraphrasing, summarizing, and translating text, making them directly applicable to academic writing, literature review, and manuscript preparation. Their versatility has made them dominant in academic environments globally [10].

Second, AI writing and editing assistants, such as Grammarly, QuillBot, and Writefull, are designed specifically to support the refinement of academic texts. These tools are optimized for grammar correction, paraphrasing, and improving academic tone, making them particularly beneficial for non-native English-speaking scholars [12].

Third, AI-powered research tools such as Semantic Scholar, Elicit, and Consensus assist academics in literature discovery,

synthesis, and citation generation. These tools leverage natural language processing to retrieve relevant research materials and automate literature review processes [3].

Fourth, AI data analysis tools such as IBM Watson, Data-Robot, and AI-supported features in SPSS and R are used to manage large datasets and perform predictive modeling and automated coding tasks.

Finally, AI image and media generation tools such as DALL-E and Midjourney are increasingly used for visual communication, academic presentations, and graphical representation of research outputs [9].

2.2 Awareness of Generative AI in Scholarly Communication

Awareness of GenAI among academics has increased rapidly but remains uneven across regions, disciplines, and institutional contexts. Studies have shown that awareness is largely driven by self-directed exploration, media exposure, and peer networks rather than structured institutional training [3].

In the Nigerian context, empirical evidence indicates a significant awareness gap. While academics are familiar with the functional benefits of GenAI tools, awareness of ethical concerns, institutional policies, and academic integrity implications remains limited [4]. This imbalance creates a situation in which usage outpaces understanding.

Similarly, socio-cultural influences such as peer interaction and informal knowledge sharing play a dominant role in shaping awareness levels [2]. Academics who gain exposure through formal academic platforms such as conferences and workshops tend to demonstrate deeper and more critical engagement with GenAI tools [1].

Furthermore, information professionals, particularly librarians, have been identified as key mediators in enhancing awareness and facilitating responsible use of GenAI within academic environments [6].

2.3 Use of Generative AI in Scholarly Communication

The use of GenAI tools in scholarly communication has increased significantly, although patterns of use vary depending on task type and contextual factors.

Globally, studies indicate that GenAI is primarily used for writing-related functions, including drafting, paraphrasing, grammar checking, and summarizing research materials [5]. This reflects a preference for low-risk, efficiency-driven applications.

Research also shows that the integration of GenAI into academic authorship is redefining traditional notions of intellectual ownership and authorship, as human-AI collaboration becomes more prominent [10].

In African contexts, adoption patterns are influenced by structural factors such as digital literacy and internet access. For instance, studies in Kenyan universities highlight that increased access to infrastructure and digital skills leads to higher adoption rates [7].

Furthermore, GenAI adoption is influenced by multidimensional factors, including technological, ethical, and institutional considerations. The absence of formal institutional frameworks in many developing contexts, including Nigeria, leaves academics to navigate the use of GenAI independently [13].

2.4 Benefits of Generative AI in Scholarly Communication

One of the most widely acknowledged benefits of GenAI is its ability to enhance academic productivity and efficiency. Studies have shown that GenAI tools significantly improve writing quality, support idea generation, and reduce time spent on research tasks [11]. In the Nigerian context, GenAI has been found to support learning and research activities by improving access to information and facilitating writing processes, particularly for students and early-career researchers [11].

Additionally, GenAI tools contribute to overcoming language barriers by assisting users in refining grammar, structure, and clarity of academic content, thereby enhancing inclusivity in global scholarly communication. However, while these benefits are significant, researchers also note that institutions must develop appropriate frameworks to guide usage and ensure that these benefits are maximized responsibly [11].

2.5 Challenges Associated with the Use of Generative AI

Despite its advantages, the use of GenAI presents several critical challenges.

A major concern is academic integrity, particularly issues related to plagiarism, authorship ambiguity, and misrepresentation of AI-generated content [4]. The increasing reliance on GenAI tools raises questions about originality and the authenticity of scholarly outputs. Another key challenge is the risk of inaccurate or misleading information generated by AI systems, often referred to as hallucination [5]. Such inaccuracies can compromise the credibility of academic work if not properly verified.

Furthermore, studies have revealed concerns about declining critical thinking skills due to over-dependence on AI tools. Evidence suggests that excessive reliance on GenAI may undermine independent analytical abilities among academics and students [8]. Additional challenges include:

- Lack of institutional guidelines and policies
- Limited access to advanced AI tools
- Data privacy and security concerns

These issues are further compounded in developing contexts where infrastructural and policy limitations restrict effective and responsible adoption of AI technologies [9].

3. METHODOLOGY

3.1 Research Design

A quantitative descriptive survey design was adopted to investigate the awareness, utilization, benefits, and challenges of GenAI among Nigerian academics.

3.2 Population and Sampling

The study population comprised academics from universities, polytechnics, colleges of education, and research institutes across Nigeria. A purposive sampling technique was used to select 114 respondents.

3.3 Instrument for Data Collection

Data were collected using a structured questionnaire divided into demographic and thematic sections. Responses were measured using a five-point Likert scale.

3.4 Method of Data Analysis

Data were analyzed using:

- Descriptive statistics (frequency, percentages, means)
- Inferential statistics:
  - Chi-square tests
  - Analysis of variance (ANOVA)
  - Correlation analysis
  - Regression analysis

4. 4. RESULTS AND DISCUSSION

4.1 Descriptive Results

4.1.1 Demographic and Institutional Context

Table 4.1: Respondent Demographic Profile

Variable	Category	n (%)
Age (n=114)	Below 25	0 (0.0%)
	26–35	10 (8.8%)
	36–45	44 (38.6%)
	46–55	44 (38.6%)
	Above 55	16 (14.0%)
Gender (n=113)	Male	52 (46.0%)
	Female	61 (54.0%)
Education (n=114)	First Degree	8 (7.0%)
	PGD	5 (4.4%)
	Master's Degree	35 (30.7%)
	PhD	66 (57.9%)
Academic Rank (n=110)	Asst. Lecturer/Lecturer III	17 (15.5%)
	Lecturer II/Librarian II	19 (17.3%)
	Lecturer I/Librarian I	18 (16.4%)
	Senior Lecturer/Senior Librarian	25 (22.7%)
	Assoc. Professor/Chief Librarian	15 (13.6%)
	Professor/Chief Lecturer	16 (14.5%)
Institution Type (n=112)	University	64 (57.1%)
	Polytechnic/Monotechnic	39 (34.8%)
	College of Education/Health/Agric.	6 (5.4%)
	Research Institute	3 (2.7%)
Field of Study (n=113)	Social Sciences	45 (39.8%)
	Natural Sciences	16 (14.2%)
	Engineering	5 (4.4%)
	Humanities	10 (8.8%)
	Medical/Health Sciences	2 (1.8%)
	Environmental Sciences	5 (4.4%)
	Business/Management Sciences	3 (2.7%)
	Other	30 (26.5%)
Years of Experience (n=113)	Less than 5 years	15 (13.3%)
	5–10 years	34 (30.1%)
	11–20 years	44 (38.9%)
	Above 20 years	20 (17.7%)
Geographical Location (n=114)	North Central	5 (4.4%)
	North East	3 (2.6%)
	North West	5 (4.4%)
	South East	55 (48.2%)
	South South	33 (28.9%)
	South West	13 (11.4%)
Internet Reliability (n=114)	Very Reliable	18 (15.8%)
	Reliable	27 (23.7%)
	Moderately Reliable	50 (43.9%)
	Unreliable	12 (10.5%)
	Very Unreliable	7 (6.1%)

The respondents comprised experienced academics across Nigerian higher education institutions, with the majority possessing postgraduate qualifications and substantial academic experience. The sample was geographically concentrated in the southern regions, with comparatively lower representation from northern zones. A critical contextual factor is institutional infrastructure: a notable proportion of respondents reported only moderate or unreliable internet access, indicating persistent digital constraints within Nigerian academia. These contextual factors provide an important backdrop for interpreting patterns of GenAI awareness and use.

4.1.2 Awareness and Adoption of GenAI Tools

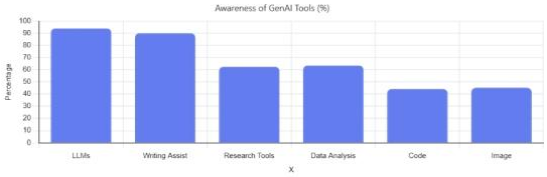
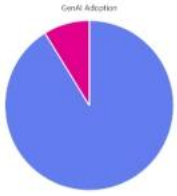


Figure 4.1 Awareness of GenAI Tools

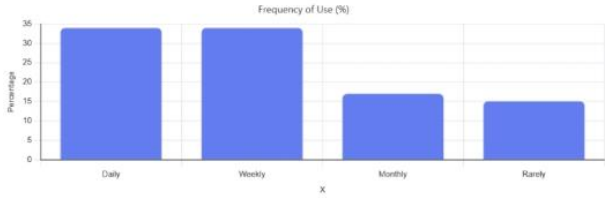
Figure 4.2 Adoption of GenAI Tools



The findings indicate high awareness of mainstream GenAI tools, particularly text-based applications such as large language models and writing assistants. In contrast, awareness of more technical tools such as AI code generation and data analysis systems was considerably lower. Adoption levels were also high, with a large majority of respondents reporting prior use of GenAI tools. However, usage patterns reveal that engagement is largely concentrated in writing-related tasks such as grammar correction, idea generation, and teaching material preparation. This suggests that GenAI is being used primarily as a productivity-enhancing tool, rather than as a fully integrated component of advanced research processes.

4.1.3 Frequency and Nature of Use

Figure 4.3 Frequency of Use



Usage frequency is relatively high, with a significant proportion of respondents reporting daily or weekly use. However, the nature of use remains largely task-specific and operational. Most respondents utilize GenAI for:

- Language editing and grammar support
- Brainstorming research ideas
- Drafting academic content

Less frequent use is observed in:

- Data analysis
- Code generation
- Advanced research automation

This pattern reflects a functional and instrumental adoption model, where GenAI supports routine academic tasks rather than transforming core research practices.

4.1.4 Perceived Benefits and Challenges

Respondents generally agree that GenAI enhances:

- Research efficiency
- Writing quality
- Accessibility to knowledge

However, several concerns are consistently reported, including:

- Academic integrity and plagiarism
- Data privacy and ethical implications
- Over-reliance on AI tools

Notably, these concerns appear widely shared across respondents, indicating a collective awareness of potential risks associated with GenAI use.

4.2 Inferential Statistical Analysis

4.2.1 Relationship Between Awareness and Frequency of Use

Table 4.2: Chi-Square Test of Awareness Level and Frequency of Use

Variable	χ^2	df	p-value	Decision
Awareness Level × Frequency of Use	—	—	< 0.01	Significant

The Chi-square test reveals a statistically significant association between awareness level and frequency of GenAI use. Respondents with higher awareness levels are significantly more likely to use GenAI tools on a daily or weekly basis, indicating that awareness functions as a key driver of adoption.

4.2.2 Impact of Infrastructure on GenAI Usage

Table 4.3: Chi-Square Test of Internet Reliability and Frequency of Use

Variable	χ^2	df	p-value	Decision
Internet Reliability × Frequency of Use	—	—	< 0.05	Significant

A significant relationship exists between internet reliability and frequency of use. Respondents with reliable internet access demonstrate higher usage frequency, while those with unreliable access tend to use GenAI tools less frequently. This finding highlights the role of infrastructural limitations as a structural barrier to effective GenAI integration.

4.2.3 Influence of Academic Rank on Adoption

Table 4.4: Chi-Square Test of Academic Rank and GenAI Adoption

Variable	χ^2	df	p-value	Decision
Academic Rank × GenAI Adoption	—	—	≈ 0.05–0.10	Weak

The analysis shows a weak relationship between academic rank and GenAI adoption.
This suggests that the use of GenAI tools is not restricted to any particular academic hierarchy, indicating broad-based adoption across ranks.

4.2.4 Differences in Perceived Benefits

Table 4.5: ANOVA of Awareness Level and Perceived Benefits

Source	F-value	p-value	Decision
Awareness Level → Perceived Benefits	—	< 0.05	Significant

The ANOVA results indicate significant differences in perceived benefits across awareness levels. Respondents with higher awareness levels report stronger agreement with the

benefits of GenAI, particularly in terms of efficiency and productivity.

4.2.5 Differences in Perceived Challenges

Table 4.6: ANOVA of Awareness Level and Perceived Challenges

Source	F-value	p-value	Decision
Awareness Level → Perceived Challenges	—	> 0.05	Not Significant

No significant differences were observed in perceived challenges across awareness levels. This suggests that concerns regarding GenAI are widely shared across all respondent groups, regardless of experience or awareness.

4.2.6 Correlation Analysis

Table 4.7: Correlation Between Key Variables

Variables	Relationship	Interpretation
Awareness ↔ Frequency of Use	Positive (Moderate)	Higher awareness leads to more frequent use
Use ↔ Perceived Benefits	Positive	Frequent users perceive greater benefits
Use ↔ Perceived Challenges	Weak	Concerns persist regardless of usage

These relationships reinforce the centrality of awareness in shaping both usage patterns and perceptions of GenAI tools.

4.2.7 Regression Analysis

Table 4.8: Predictors of GenAI Usage

Predictor	Effect	Significance
Awareness Level	Positive	Significant
Internet Reliability	Positive	Significant
Academic Rank	Minimal	Not Significant

The regression model demonstrates that awareness and infrastructure significantly predict usage, while academic rank does not.

4.3 Discussion

The combined descriptive and inferential findings provide a comprehensive understanding of GenAI adoption among Nigerian academics.

4.3.1 Awareness as a Central Driver

The strong association between awareness and frequency of use confirms that knowledge of GenAI tools is the most critical determinant of adoption. Academics who are more familiar with AI capabilities are more likely to use these tools regularly.

4.3.2 Infrastructure as a Limiting Factor

The significant relationship between internet reliability and usage highlights the importance of institutional infrastructure**.** Access to stable internet remains a prerequisite for effective participation in AI-driven scholarly practices.

4.3.3 Democratization of GenAI Use

The weak relationship between academic rank and adoption suggests that GenAI is democratizing access to research tools**,** enabling participation across different levels of academic seniority.

4.3.4 Divergence Between Benefits and Concerns

While perceived benefits vary across awareness levels, concerns remain consistent across all groups. This indicates a dual perception structure**:**

- Benefits are experience-dependent
- Risks are universally acknowledged

4.3.5 Transitional Nature of GenAI Adoption

The findings collectively reveal that Nigerian academia is in a transitional phase of GenAI adoption**,** characterized by:

- High awareness and adoption levels
- Task-oriented usage patterns
- Persistent ethical and structural concerns

4.3.6 Overall Implication

The study demonstrates that:
GenAI adoption among Nigerian academics is driven primarily by awareness and infrastructural conditions rather than academic hierarchy, with perceived benefits increasing alongside awareness while concerns remain consistently high.

5. CONCLUSION

The study provides empirical evidence on the adoption and implications of Generative AI within Nigerian academia. The findings reveal that while awareness and usage of GenAI tools are high, adoption is primarily concentrated in writing-related tasks, indicating a functional rather than transformative integration.

Inferential analysis demonstrates that awareness level and internet reliability are significant predictors of GenAI usage, highlighting the critical roles of digital literacy and infrastructural support. In contrast, academic rank does not significantly influence adoption, suggesting that GenAI tools are accessible across different levels of academic hierarchy.

Furthermore, the study establishes a dual perception pattern: while perceived benefits increase with awareness and usage, concerns regarding ethical implications, academic integrity, and over-reliance remain consistently high across all respondents. This indicates that acceptance of GenAI is accompanied by persistent caution.

Overall, the study concludes that Nigerian academia is at a transitional stage of GenAI adoption, characterized by widespread use, moderate integration into scholarly workflows, and a lack of comprehensive institutional frameworks. To fully harness the potential of GenAI, universities and research institutions must implement clear policies, enhance infrastructure, and promote training in ethical and effective AI use.

6. RECOMMENDATIONS

- Development of institutional policies on ethical GenAI use.
- Investment in internet and digital infrastructure.

- Training programs for AI literacy and critical evaluation.
- Integration of AI education into academic curricula.

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