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Deployment of ChatGPT in Nigerian Universities: Addressing Research Challenges and Ethical Considerations

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Abstract

The research landscape in Nigerian universities faces significant hurdles, hampering both the quantity and quality of academic output. This has hindered national development and industrialization. However, the emergence of artificial intelligence (AI) chatbots, notably ChatGPT, presents a promising avenue for revolutionizing academia. Nonetheless, their integration raises ethical concerns. To address these issues, this study explores leveraging ChatGPT to surmount research obstacles in Nigerian academia while fostering sustainable growth. Through a desk review spanning reputable databases like Scopus, ScienceDirect, and Google Scholar, insights were gleaned and synthesized via content analysis. The findings revealed that ChatGPT stands to enhance research accessibility, reduce costs, aid comprehension and writing, facilitate collaboration, and support various research aspects. However, ethical dilemmas such as knowledge bias, privacy, and erosion of critical thinking must be navigated. The study outcome aligns with United Nations Sustainable Development Goal 4 (advocating for quality education), and offers recommendations for responsible ChatGPT integration. Researchers, educators, and policymakers are urged to adopt ChatGPT judiciously, adhering to ethical guidelines to maximize its benefits while mitigating potential drawbacks in the Nigerian educational landscape.

Keywords: ***research, ChatGPT, ethics, universities, Nigeria***

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Introduction

Nearly seven decades ago, McCarthy, Nash, Herbert, and other pioneering scholars introduced the concept of machine intelligence, laying the foundation for what is now recognized as artificial intelligence (AI) (Crawford et al., 2023). Since its inception in the 1950s, the field of AI has evolved significantly, with widespread applications across various domains including games, chatbots, algorithmic decision-making, and expert systems. The proliferation of advanced technologies such as machine learning and neural networks has enabled AI systems to perform tasks ranging from predictive analytics to audio-visual recognition.

One of the most significant advancements in recent years is the emergence of large language models (LLMs), particularly the Chat Generative Pre-trained Transformer (ChatGPT), developed by OpenAI. As highlighted by Crawford et al. (2023), ChatGPT integrates natural language processing and deep learning techniques, leveraging vast datasets to perform a wide array of functions, including real-time generation of code, scripts, reports, and creative ideas across diverse sectors (Fauzi et al., 2023; Rahman et al., 2023; Zhu, 2023). Its versatility has made it one of the fastest-growing AI applications globally, with a rapidly expanding user base.

Since its release in November 2022, ChatGPT has spurred a wave of interest in its potential to enhance research productivity and educational delivery (Karaköse, 2023; Rahman & Watanobe, 2023; Qasem, 2023). In particular, it offers new opportunities to address long-standing challenges in academic systems, especially in developing countries where research infrastructure and support systems are inadequate. The strategic use of AI tools such as ChatGPT in academic settings may offer transformative benefits for institutions in regions such as Nigeria, where universities face a complex mix of systemic, infrastructural, and policy-related barriers to research and innovation.

This study explores the extent to which ChatGPT can be integrated into

academic research and educational practice within Nigerian universities. It also addresses the ethical challenges posed by AI adoption in academic settings. The central research questions are:

- **RQ1.** In what ways can ChatGPT alleviate research bottlenecks and enhance student learning experiences and academic productivity in Nigerian universities?
- **RQ2.** What ethical considerations arise from the utilization of ChatGPT within Nigerian universities?

By addressing these questions, the study contributes to the growing global discourse on the responsible and effective integration of AI in higher education, with implications for advancing the United Nations Sustainable Development Goal 4 (Quality Education).

Literature Review

Recent scholarship has highlighted ChatGPT's capacity to support various academic tasks, including writing, ideation, programming, and personalized learning (Karaköse, 2023; Sallam, 2023; Qasem, 2023). Its appeal lies in its ability to facilitate fast and intelligent text generation, with potential applications across disciplines. In educational contexts, this AI-based model has been praised for enhancing the accessibility and efficiency of learning, while in research, it is increasingly being considered as a tool to streamline academic writing and improve scholarly output. Despite these advantages, concerns have been raised regarding the ethical, pedagogical, and epistemological implications of integrating generative AI tools into research workflows and classroom settings (Rahman et al., 2023; Zhu et al., 2023). Issues such as misinformation, fabricated citations, lack of critical thinking, plagiarism, and inadequate empirical rigor have sparked institutional debates around the responsible use of such tools.

Global responses to ChatGPT adoption in academia have been varied. For instance, universities such as RMIT in Australia and the University of

Tasmania have permitted its use under clear ethical guidelines, while institutions like Bengaluru RV University (India), Sciences Po (France), and the University of Hong Kong have imposed outright bans (Crawford et al., 2023). These divergences underscore the need for context-specific frameworks to govern AI usage in educational settings.

The Nigerian higher education system is characterized by a myriad of challenges that significantly hinder academic research. These include lack of academic autonomy, funding constraints, excessive workload due to high student-to-staff ratios, and outdated infrastructure (Duze, 2011; Yusuf, 2012; Endong, 2019). Further institutional constraints such as limited mentorship, poor writing skills, brain drain, and demotivation exacerbate the situation (Igiri et al., 2021). The nation's research funding, estimated at only 0.3% of GDP, falls significantly short of the 1% recommended by the Lagos Plan of Action (Yusuf, 2012), placing Nigeria behind global benchmarks where research and development spending typically hovers around 2% of GDP. These deficits have resulted in low research output and a decline in the quality of scholarship. As noted by Olukoju (2004), Nigeria's once-prestigious academic journals have largely ceased publication, further constraining academic visibility. The phenomenon known as "publish or perish" has led to problematic academic practices, including citation manipulation, duplicate publication, and unethical co-authorship arrangements (Endong, 2019).

Emerging studies suggest that AI tools such as ChatGPT hold significant promise in addressing some of the entrenched issues in Nigerian academic research. For example, ChatGPT can help mitigate workload-related time constraints by assisting with literature synthesis, preliminary drafts, or data interpretation (Karaköse, 2023; Qasem, 2023). It can also support capacity building by providing writing assistance and promoting autonomous learning among students and faculty. Nevertheless, these potential benefits must be balanced against ethical concerns. Without appropriate regulatory mechanisms, there is a risk of exacerbating academic misconduct and

undermining research integrity (Rahman et al., 2023). Scholars have thus emphasized the need for comprehensive ethical guidelines to regulate the use of AI in academic research and publishing, particularly in contexts like Nigeria, where regulatory frameworks remain underdeveloped.

Although the global discourse on AI in education is expanding, there remains a dearth of empirical research that explores its application within the Nigerian context. Most existing studies are either conceptual or conducted in Western academic settings. As such, there is an urgent need to examine how tools like ChatGPT can be effectively and ethically deployed to enhance research productivity and educational outcomes in Nigerian universities.

This study seeks to fill this gap by analyzing the dual potential of ChatGPT as both a catalyst for research enhancement and a source of ethical concern. Its findings aim to inform policy and practice in Nigeria's higher education sector and contribute to the broader conversation on the responsible integration of AI in academic institutions globally.

Methodology

The primary aim of the current study was to investigate the impact of ChatGPT on the landscape of research and education in Nigerian universities. This study adopted a **desk review research methodology,** a qualitative approach that involves the systematic identification, selection, appraisal, and synthesis of existing literature relevant to the research topic. The desk review method is well-suited for exploratory studies such as this, where emerging technological trends, like the use of ChatGPT, are assessed within an academic and socio-cultural context. The method follows the framework advanced by Fauzi et al. (2023) and integrates a critical review approach as recommended by de Castro (2023), enabling a rigorous examination of existing knowledge and scholarly discourse on the subject. To collect pertinent and up-to-date information, the review process focused on literature published from November 2022 to December 2023, aligning with

the global emergence and accelerated adoption of ChatGPT in education and research. Academic databases with high credibility and comprehensive coverage were used to retrieve relevant studies. These databases include Scopus, ScienceDirect, and Google Scholar.

The criteria for the selection of the relevant articles for the study include: the papers needed must directly relate to the study by focusing on the deployment of ChatGPT in research and education within university settings. Furthermore, the papers provide insights into at least one of the research questions. Moreover, the papers must be in English as an additional requirement. During the screening stage, which occurred in two distinct rounds, the first round involved the compilation and initial screening of the outputs from the databases. A total of **64** articles were initially identified across the three databases. Each article was screened based on its title, abstract, and keywords to determine alignment with the research scope. Subsequently, the second round involved the deduplication of entries. After removing duplicates, **53 unique articles** remained. These were subjected to a comprehensive review using the **Critical Appraisal Skills Programme (CASP) checklist**, which evaluates the credibility, methodological soundness, and relevance of qualitative research. Following the appraisal, **20 high-quality articles** were selected for inclusion in the final synthesis. These articles are listed in **Table 1** and further illustrated through the selection process in **Figure 1**. The selected studies underwent a structured content analysis, which involved the thematic coding and categorization of key concepts, arguments, and findings relevant to the study's objectives. This approach ensured that the data were not only systematically reviewed but also critically interpreted to generate insightful conclusions and policy-relevant recommendations.

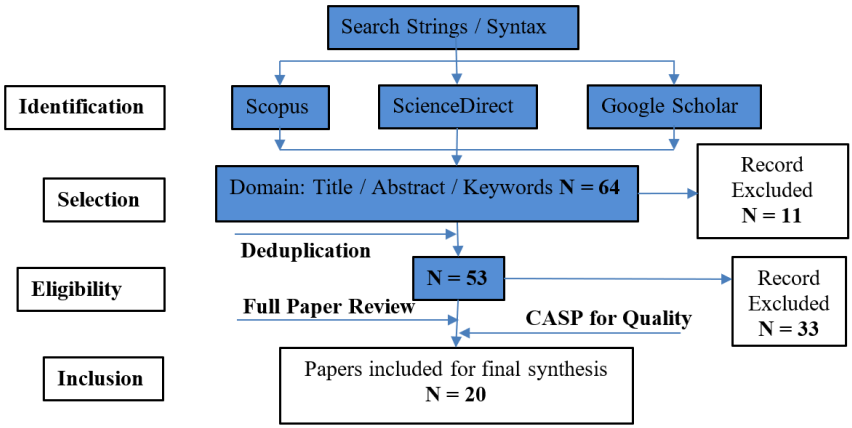

Fig. 1: Desk review research methodology flowchart

Results and Discussion

Research findings have demonstrated that the utilization of ChatGPT holds promise for substantially influencing the educational development and learning journeys of students and research (de Castro, 2023; Fauzi *et al.*, 2023; Rahman & Watanobe, 2023; Shoufan, 2023) within Nigerian universities. This impact is particularly notable in the realm of scholarly investigation. ChatGPT can operate in various capacities, including:

Facilitating Virtual Support

The integration of ChatGPT into research and educational settings within Nigerian universities has the potential to provide valuable assistance to both academics and students as a virtual companion. Research findings from Fauzi *et al.* (2023), Lo (2023) and Nikolopoulou (2024) affirm that ChatGPT can function effectively as a virtual research aide for students, particularly at the doctoral level, where many face challenges in finding suitable partners for independent research endeavours. These challenges often revolve around the initial stages of research, including idea generation, project direction setting,

structuring research, and study design.

Such obstacles can significantly impede the progress of students' research work, leading to prolonged program durations. ChatGPT can mitigate the intellectual isolation experienced by doctoral students, particularly when supervisors are unavailable due to academic and administrative commitments, and when there is a lack of a robust doctoral research support community within the university. Additionally, the limited enrollment in doctoral programmes exacerbates this isolation.

Table 1: Synthesis of 20 papers included in the study

	Reference	Study Context	Benefits	Ethical Issues
1.	Crawford *et al.* (2023)	University (Students)	Supportive learning environment, deep learning, better learning outcomes	Authenticity of student work, and cheating in exams
2.	de Castro (2023)	Higher education (Students)	Improved student engagement, teaching practices and personalized learning experiences	Potential for bias, academic integrity, and privacy concerns
3.	Fauzi *et al.* (2023)	Higher education (students)	Improving quality in student productivity and language skills, providing information and resources, facilitating collaboration, and efficiency	nil
4.	Iqbal *et al.* (2023)	University, Pakistan (faculty members)	Lesson planning and assessment, timely feedback to students	Cheating, plagiarism, and distraction from traditional learning
5.	Karakose (2023)	Educational researchers	Generating new ideas, conducting systematic reviews, avoidance of errors, and improving manuscript drafting skills	Inaccurate references, incompatibility with current ethical obligations
6.	Katz *et al.* (2023)	White University (teachers)	Valuable tool in analyzing and categorization of students' feedback	nil

	Reference	Study Context	Benefits	Ethical Issues
7.	Lo (2023)	University (Teachers and students)	Assistant for instructors, creating course syllabus, and virtual tutor for students	Falsified information, issues of reliability, and plagiarism
8.	Macdonald *et al.* (2023)	Researchers	Designing studies, Data analysis and drafting research papers	Issues of accuracy, plagiarism, reliability
9.	Qasem (2023)	University (Researchers and students)	Support in research	Misuse, reliance on the tool, laziness, and plagiarism
S/N	Reference	Study Context	Benefits	Ethical Issues
10.	Rahman & Watanobe (2023)	University (Teachers and students)	Rapid assessment, lesson preparation, programming, and teaching complex concepts	Threat to traditional education systems, blind reliance, and eroding critical thinking
11.	Rahman *et al.* (2023)	University (Academician, researchers and students)	Essay writing, generating ideas, and summarizing literature	Citation errors, biases, inaccuracies, and validity of generated results
12.	Sallam (2023)	Healthcare education, research and practice	Improving scientific writing, literature review, code generation, personalized learning,	Legal and transparency issues, lack of originality, incorrect citations
13.	Shoufan (2023)	Computer engineering students	Study motivation, provide well-structured responses and explanations	Lacks accuracy and threatens job opportunities
14.	Stepanechko & Kozub (2023)	English educators and students	Facilitate interactive learning, resolving inquiry-based tasks	Negative impact on learning, limiting problem-solving skills
15.	Sun & Hoelscher (2023)	Nursing Education (Faculty)	Rapid response to queries and support independent learning	Academic integrity
16.	Tsai (2023)	University (Teachers and students)	Hands-on learning experience, evaluate alternative feedback in self-directed learning, promoting deeper thinking	nil
17.	Vasconcelos & Dos	STEM Education (Students)	Foster reflective and critical thinking, problem-	Concerns about accuracy and reliability and diminished interaction

	Reference	Study Context	Benefits	Ethical Issues
	Santos (2023)		solving skills, and comprehension	
18.	Wang *et al.* (2023)	Medicine (Researchers)	Generate effective Boolean queries, rapid review, and time efficiency	Low precision
19.	Zhu *et al.* (2023a)	University (students)	Efficiency, personalized learning, and generating human-like responses	Generic response, lack of innovation,
S/N	Reference	Study Context	Benefits	Ethical Issues
20.	Zhu *et al.* (2023b)	University (Teachers and students)	Generate plausible responses, guidance for complex tasks, and giving feedback	Lack of critical thinking, AI-assisted cheating, privacy and security, socio-cultural and technological issues

However, it is essential to ensure that ChatGPT is utilized solely as an assistant and not as a primary source of scholarly information. Furthermore, verifying the accuracy and credibility of ChatGPT's output is crucial to maintaining academic integrity and enhancing research experiences. By adhering to these precautions, students and educators can effectively leverage ChatGPT to optimize academic pursuits while upholding the standards of integrity.

Enhancing Productivity

Efficiency is one of the key opportunities in the deployment of ChatGPT in research and academic growth. Fauzi *et al*. (2023) highlighted the potential of integrating ChatGPT to enhance productivity among students and educators. This study recognized that ChatGPT offers opportunities in the area of effectiveness, promptness, and fast information retrieval, and facilitates research collaboration and knowledge-sharing. It also improves writing skills, vocabulary, grammar, and proofreading, thus boosting motivation. These benefits can play important roles in militating some identified

challenges confronting research and academic growth in Nigerian universities. The lack of a conducive academic environment and support facilities in Nigerian universities has raised concerns about low student productivity (Akpochafo, 2009). The reasons behind this issue are varied, including disorganized teaching methods, insufficient academic staff-to-student ratios, pressure from assignment deadlines, economic challenges, limited access to modern educational infrastructure, and uncomfortable learning conditions.

Rahman & Watanabe (2023) emphasized that deploying ChatGPT in research and education can contribute to improving students' academic performance by assisting in generating questions, refining assessment methods, and aiding in the creation of teaching resources such as writing skills, curriculum design, course materials, and language translations (Lo, 2023). Furthermore, Shoufan (2023) noted students' fascination with ChatGPT's ease and assistance in their academic endeavours. However, it is crucial to underscore the importance of responsible and ethical use of this AI tool to ensure successful integration.

Improving Critical Thinking and Problem-Solving Skills.

The effective use of ChatGPT can promote analytical thinking while also assisting in the development of problem-solving skills by breaking down complex concepts into manageable units in course instruction and learning methodologies. This assertion has been corroborated in the outcome of the study by Zhu *et al.* (2023a). The study identified that, within this framework, ChatGPT demonstrates an ability to break down intricate tasks into more manageable components while guiding various aspects of task execution. These include devising study plans, customizing curriculum design, and formulating a variety of practice questions, including both open-ended and multiple-choice formats (Zhu *et al.,* 2023b). The examination of complex research dilemmas and assignments by students frequently sets the stage for

proposing the most effective resolution.

Nonetheless, delving into these puzzles with profound and analytical thinking often poses challenges for both students and, at times, educators in fully elucidating every facet of the problem at hand. ChatGPT aids in the creation of quizzes, furnishing answers, and even assists in poetry composition (Zhu *et al.,* 2023a). Tsai's study (2023) validates that the integration of the ChatGPT Python API into teaching and learning processes can effectively enhance problem-solving skills, foster creativity, and promote learner-centered instruction. Moreover, Vasconcelos and Santos (2023) underscored that leveraging ChatGPT in education could significantly benefit students by nurturing critical, creative, and reflective thinking, refining cognitive skills pertinent to problem-solving, and facilitating quicker comprehension.

Effective Literature Review, Scientific Manuscripts Drafting, and Advancing Writing Skills

ChatGPT, renowned for its capacity to offer lucid responses to intricate queries in a logically organized fashion with human-like fluency (Zhu *et al.,* 2023b), not only serves as a research aid but also functions as an educational tutor (Lo, 2023). Engaging in comprehensive scholarly assessment stands as a significant and demanding aspect of academic research, particularly within the conventional literature review process, largely due to the challenges associated with accessing reputable databases. Early-stage researchers often encounter obstacles such as abstract structuring, introduction drafting, gap identification, and problem statement formulation (Rahman *et al.,* 2023; Zhu *et al.,* 2023a).

Rahman and Watanabe (2023) and Chukwuere (2024) note ChatGPT's potential to improve academic writing by rectifying errors, addressing grammatical constraints, enriching vocabulary usage, summarizing previous research, and generating research concepts on specific subjects. For instance,

Macdonald *et al.* (2023) showcased ChatGPT's utility in global research endeavours, including drafting research articles, reviewing literature, and analyzing data related to vaccine effectiveness. Moreover, it contributes to literary education by enhancing academic writing skills and facilitating the development of teaching materials (Zhu *et al.,* 2023b). However, it is crucial to exercise cautious human supervision when utilizing this AI tool in research and educational contexts.

Promoting Collaboration

The emergence of ChatGPT presents promising solutions that could facilitate collaboration across disciplines among faculty, students, and researchers, bridging existing gaps. Katz *et al.* (2023) demonstrated ChatGPT's effectiveness in analyzing student teamwork feedback with a reported accuracy of 90% in identifying valuable tools for team projects. The limitations imposed by time and budgetary constraints have led to a perceived deficiency in comprehensive multidisciplinary research within Nigerian academic institutions. This insufficiency manifests as a lack of thoroughness and depth in addressing the complex challenges inherent in research endeavours. Additionally, Rahman and Watanobe (2023) highlight the potential benefits of utilizing ChatGPT in programming education, including code generation, error identification, debugging, and optimization in team settings. By streamlining processes, improving efficiency, providing necessary resources and information, and enhancing communication and motivation, ChatGPT has the capacity to catalyze transdisciplinary collaborations, leading to innovative problem-solving research outcomes.

Time Efficiency and Economic Savings

Sallam (2023) highlighted the potential for educators to utilize ChatGPT, which enhances the speed, efficiency, and precision in crafting educational materials. Due to constrained research funding, alongside academic

responsibilities, and the pressure for publication to advance in Nigerian universities, the demands on time and financial resources for research activities have grown significantly burdensome. The integration of ChatGPT in research endeavours promotes time efficiency and accelerates scientific advancement (Macdonald *et al.,* 2023). Similarly, Wang *et al.* (2023) stressed ChatGPT's capability to streamline systematic literature reviews, demonstrating its comparative advantage in generating and refining automated Boolean queries and executing complex instructions with heightened accuracy. Nonetheless, it was noted that ChatGPT exhibits lower recall rates compared to state-of-the-art methods, and its application is confined to snowballing, a limitation that has been acknowledged. In line with these challenges, Yusuf (2012) outlined various obstacles encountered in research within Nigerian universities, including inadequate infrastructure, limited resources, and funding shortages. Conversely, Rahman and Watanabe (2023) argued that deploying ChatGPT in research and education yields economic savings.

Ethical Dimensions in the Deployment of ChatGPT in Nigerian Universities

ChatGPT has emerged as an indispensable tool for researchers, educators, and students across various formal and informal pursuits (Rahman *et al.*, 2023; Qasem, 2023). Nevertheless, concerns have been raised regarding certain contentious issues surrounding its usage and application in both research and education contexts (Zhu *et al.,* 2023a). Particularly, there are ethical and imprudent utilization concerns arising from its human-like text generation capabilities (Rahman & Watanobe, 2023). The integration of ChatGPT poses potential threats to traditional research and educational systems due to the ethical dilemmas stemming from the lack of user guidance and policies.

Before the adoption of ChatGPT in Nigerian universities, ethical issues

were already prevalent within the academic landscape. Ikeagwulonu *et al.* (2021) identified twelve ethical issues in biomedical research in Nigeria, including concerns related to beneficence, autonomy, and informed consent. Ajayi & Adeniji (2009) highlighted factors such as government influence, societal norms, and inadequate home control as contributing to these ethical challenges. Moreover, misconduct within Nigerian universities, particularly in research, has become a pressing concern. Okonta & Rossouw (2012) found that a significant portion of researchers had been involved in scientific misconduct, primarily revolving around authorship disputes, with many perceiving it as commonplace.

The deployment of ChatGPT and its associated challenges could exacerbate these ethical issues if comprehensive solutions are not developed. This challenge is compounded by the limited capacity of research ethics committees within Nigerian universities to effectively enforce ethical standards across academic research. Scholars such as Ikeagwulonu *et al.* (2021), Ameh *et al.* (2006), and Okeke & Ume (2015) advocate for institutional capacity enhancement to establish functional mechanisms for upholding ethical standards. Akpabio & Esikot (2014) emphasize the importance of nurturing ethical norms within the research community, particularly given the perceived fragility in administrative and teaching environments. Similarly, Nigerian universities must make concerted efforts to proactively address ethical considerations in the integration of ChatGPT into research and education practices.

Examination Malpractices

The integration of ChatGPT into academic settings could compound issues related to exam cheating due to its ability to generate responses akin to those of humans. The risks primarily revolve around unethical, deceitful, and irresponsible utilization, including AI-facilitated cheating during university examinations, which could significantly undermine academic integrity

(Rahman & Watanobe, 2023; Qasem, 2023). These could become a major problem given the array of existential factors contributing to academic misconduct in Nigerian universities. These include deficient educational resources, diminished motivation, cognitive limitations, deteriorating values, idleness, ineffective supervision, and lack of readiness. It is imperative to implement well-coordinated strategies to combat such misconduct resulting from the improper use of this AI tool by students during exams. The study by Lo (2023) highlighted the importance of educators reformulating ChatGPT-generated questions to ensure their relevance and contextual appropriateness for students' critical evaluation.

Educators must tailor, adjust, and enhance their evaluation methods for students' assignments to thwart AI-supported cheating through practical applications, fieldwork, laboratory exercises, oral presentations, and hands-on projects, thus discouraging shortcuts (Faisal, 2024; Rahman *et al.*, 2023). Moreover, incorporating practical and applied questions, along with supplementary inquiries in assessments, can gauge learners' comprehension depth and deter cheating (Rahman & Watanobe, 2023). Crawford *et al.* (2023) propose a threefold approach to mitigate the adverse effects of ChatGPT use in education, emphasizing the development of authentic assessment methods, fostering students' character development, and nurturing leadership qualities as foundational support. Through these measures, ChatGPT's incorporation could facilitate profound learning and enhance outcomes while maintaining the standards of education in Nigeria.

Increased Level of Plagiarism

The integration of ChatGPT in academic contexts has raised substantial concerns over plagiarism, particularly due to its ability to evade traditional detection systems (Lo, 2023). In response, institutions in cities like Los Angeles, Seattle, and New York, as well as universities such as Sciences Po, have restricted access to AI chatbots on campus networks to safeguard

academic integrity (Chukwuere, 2024; Zhu et al., 2023a). In Nigeria, where plagiarism already poses a major challenge, rooted in poor referencing skills, limited writing proficiency, lack of academic training, and unrestricted internet access, the emergence of AI-generated content exacerbates existing vulnerabilities (Adebowale, 2020).

In light of these challenges, global publishing bodies like Cambridge University Press have introduced protocols mandating AI-use disclosure and encouraging AI-sensitive plagiarism checks (de Castro, 2023). Similarly, policy discussions are underway to establish regulatory frameworks addressing data protection, academic dishonesty, and ethical AI deployment (Faisal, 2024; Rahman et al., 2023). In order to mitigate misuse, educators are urged to provide targeted instruction on scholarly writing, proper citation, and ethical use of AI tools, alongside robust institutional enforcement mechanisms.

Decline in Creativity and Critical/Analytical Thinking

A growing body of scholarship has raised concerns about the potential adverse impact of ChatGPT on creativity, problem-solving, and critical thinking in educational settings (Rahman & Watanobe, 2023). Specifically, excessive reliance on AI-generated responses may inhibit students' ability to engage in independent intellectual inquiry and analytical reasoning. Zhu et al. (2023a) warned that such dependence could result in a form of self-sabotage, as ChatGPT's outputs are not always reliable and may mislead students who fail to critically evaluate the content.

In the Nigerian university context, anecdotal evidence suggests a noticeable decline in students' creative and analytical thinking capacities. This trend is often attributed to systemic issues such as inadequate emphasis on critical thinking in curricula, the erosion of self-reliance, deficiencies in pedagogical practices, and a lack of project-based learning modules. These institutional shortcomings exacerbate the risk of overdependence on

generative AI tools, especially in the absence of structured academic guidance. Nonetheless, scholars have identified opportunities to harness ChatGPT for educational enhancement if deployed within an ethically sound and pedagogically robust framework. Rahman and Watanobe (2023) advocated for personalized learning experiences using ChatGPT, while emphasizing the necessity for structured interventions to mitigate overreliance. Sun and Hoelscher (2023) recommended integrating activities that promote self-directed learning, critical thinking, and self-reflection, noting that ChatGPT can positively contribute to academic performance in contexts where these competencies are foregrounded—such as in nursing and healthcare education.

Educational leadership plays a pivotal role in shaping the ethical and effective use of AI tools. Crawford et al. (2023) argued for the application of educational psychology principles to guide ChatGPT integration, underscoring the importance of proactive instructional leadership. In line with this, Sun and Hoelscher (2023) suggested embedding leadership modules into academic programmes to facilitate ethical AI usage and student agency. Furthermore, Stepanechko and Kozub (2023) emphasized inquiry-based learning strategies, which stimulate independent thought, problem-solving, and creativity. Effective instructional approaches—such as case studies, debates, interactive class discussions, and spontaneous oral exercises—can further enhance student engagement and cognitive autonomy.

In summary, while ChatGPT presents notable pedagogical opportunities, its uncritical adoption risks eroding core academic skills. A balanced integration that fosters creativity, critical inquiry, and ethical engagement is essential to ensuring that generative AI serves as a tool for empowerment rather than dependency

Copyright Issues, Data Privacy, and Confidentiality

Sallam (2023) underscores the challenges arising from the integration of

ChatGPT into educational settings, including cybersecurity risks, potential biases, and ethical and copyright concerns. Moreover, Rahman *et al.* (2023) identifies broader issues encompassing privacy, ownership of generated ideas, transparency, accountability, misuse of technology, security, and discrimination. Endong (2019) acknowledges the pervasive influence of the "publish or perish" culture on the declining standards of research and education in Nigerian universities. This phenomenon is exacerbated by factors such as extensive data mining and an unsustainable emphasis on institutional repositories. Karaköse (2023) highlights the legal and ethical obligations surrounding academic publication. To mitigate these challenges, it is imperative to establish clear user guidelines for ChatGPT's utilization in research and enact robust legal frameworks and enforceable policies addressing privacy, transparency, confidentiality, and copyright matters.

Fabricated References and Risk of Infodemics

Concerns regarding the integration of ChatGPT into educational settings also exist, including the potential for infodemics, inaccuracies in citations, and the introduction of bias (Sallam, 2023). Moreover, Macdonald *et al.* (2023) and Nikolopoulou (2024) underscored ethical dilemmas associated with ChatGPT use, particularly concerning proper citation practices. The challenges posed by infodemics in Nigerian universities stem from various factors, including the reliance on social media for information and unorthodox methods of measuring citations, as well as a dearth of genuine research output (Endong, 2019). Nevertheless, Rahman *et al.* (2023) proposed that through thorough training and awareness initiatives among both students and educators about ChatGPT's limitations, risks, and capabilities, the likelihood of infodemics in academia can be mitigated.

Implications of Findings

The findings from this study underscore the transformative potential of

ChatGPT in shaping the landscape of research and academic development in Nigerian universities. The implications are multidimensional, spanning pedagogical, institutional, technological, and ethical domains, each of which carries significant weight for policy, practice, and future research.

The use of ChatGPT as a virtual research assistant provides a timely intervention for addressing long-standing challenges such as intellectual isolation, limited supervisory availability, and inadequate research mentorship, particularly at the doctoral level. This suggests a paradigm shift in the support structure for postgraduate education in Nigeria, with AI-powered tools augmenting traditional academic support systems. Educators and administrators must thus consider integrating AI literacy into postgraduate training and supervisory practices to maximize the benefits of such technologies. Moreover, the tool's ability to improve productivity, writing proficiency, and critical thinking indicates that it can serve as a pedagogical supplement that fosters independent learning and skill acquisition. These findings imply that curricula should be restructured to formally embed AI-supported learning and research methodologies, thereby preparing students for the evolving academic and professional landscapes shaped by digital technologies.

The findings highlight ChatGPT's potential to mitigate some infrastructural and operational deficits characteristic of Nigerian universities—such as low academic staff-to-student ratios, time constraints, and funding shortages. By promoting time efficiency, economic savings, and streamlined collaboration, ChatGPT can help bridge the gap in research capacity and productivity between Nigerian universities and their global counterparts. This underscores the need for institutions to formally incorporate AI-enabled platforms into their research ecosystems, support services, and interdisciplinary collaboration frameworks. Further, the positive impact on team-based activities and knowledge sharing presents an opportunity for institutions to nurture transdisciplinary and multi-

institutional research initiatives, essential for addressing complex, contextual challenges in Nigeria.

Notwithstanding its advantages, ChatGPT presents significant ethical dilemmas, especially regarding examination malpractice, plagiarism, and the potential erosion of students' creativity. These concerns imply an urgent need for Nigerian universities to revisit and strengthen their academic integrity policies and ethics frameworks. This includes developing clear AI-use guidelines, investing in AI-sensitive plagiarism detection tools, and updating assessment methods to emphasize originality, critical engagement, and applied knowledge. Furthermore, these findings suggest that ethics committees across institutions require substantial capacity building to effectively govern AI use in research and education. Universities must take proactive measures by organizing training sessions for staff and students on responsible AI usage, research ethics, and digital citizenship.

The study points to the necessity of strategic policy development at both institutional and national levels to ensure that the deployment of ChatGPT aligns with educational goals and ethical standards. Institutional readiness—including infrastructure, staff training, and digital governance frameworks—is critical to harnessing the potential of ChatGPT while mitigating associated risks. Policies should focus on AI disclosure protocols, data security, authorship integrity, and mechanisms for AI oversight in academic work. Given the demonstrable benefits of ChatGPT in curriculum development, instructional material generation, and multilingual support, Nigerian universities have an opportunity to enhance inclusivity and teaching efficiency through its integration. These findings imply that future instructional designs should incorporate AI-driven tools not as replacements, but as enablers of adaptive, learner-centered, and creative pedagogy. This would involve training educators to design AI-enhanced learning experiences and adopting flexible delivery models that accommodate AI collaboration.

Conclusion

This study examined the integration of ChatGPT into the academic environment of Nigerian universities, with particular attention to its potential for addressing research challenges and enhancing scholarly development. Using a desk review methodology, the study synthesized existing literature to provide a qualitative analysis of ChatGPT's role in supporting research productivity, fostering critical thinking, improving collaboration, and enhancing academic writing skills within the Nigerian university system. The findings underscore the transformative potential of ChatGPT in mitigating longstanding institutional constraints and creating new opportunities for scholarly engagement. However, the study also highlights pressing ethical concerns—including the risks of plagiarism, examination malpractice, and the erosion of student creativity—which necessitate deliberate, guided integration. The reluctance of some educators to adopt ChatGPT, as reported by Iqbal et al. (2022), reflects these concerns. Yet, rather than advocating for prohibition, stakeholders emphasized the need for awareness, training, and responsible use.

In response, the study proposes a set of strategic recommendations to ensure the ethical and effective deployment of ChatGPT in Nigerian higher education. These include the development of institutional guidelines for ethical use, government-backed retraining programmes for educators, strict enforcement of citation practices, investment in AI-powered plagiarism detection tools, and the adoption of diversified student assessment methods. Furthermore, expanding internet accessibility and strengthening institutional ethics committees are crucial for equitable and accountable AI use. Collaboration with AI developers is also recommended to enhance reference accuracy and detect AI-generated content more effectively. Implementing these recommendations will enable Nigerian universities to responsibly harness ChatGPT's benefits while safeguarding academic integrity, promoting creativity, and nurturing critical thinking. Such efforts align with

the broader goals of the United Nations Sustainable Development Goal 4 (Quality Education) and contribute meaningfully to global discourse on the responsible use of AI in academia.

Ultimately, this study contributes to existing knowledge by offering nuanced insights into both the promises and perils of AI integration in Nigerian universities. While the qualitative findings illuminate current trends and challenges, future research should undertake empirical investigations to validate these outcomes and assess the levels of awareness, acceptance, and practical deployment of ChatGPT among students, faculty, and researchers. Such studies are vital for informing evidence-based policies and practices in the evolving landscape of AI-driven education.

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