

IMPENDING DANGER OF OVERDEPENDENCE ON AI IN ACADEMIC RESEARCH: AN APPRAISAL

WORLU, Oroma Lois

Department of Journalism and Media Studies

Rivers State University

Email: oroma.worlu@ust.edu.ng

Phone: +2348137723487

Orcid ID: 0009-0007-5743-9419

&

KURU, Leton Cynthia (Ph.D)

Department of Development Communication Studies

Rivers State University

Email: leton.kuru@ust.edu.ng

Phone: +2348064579261

Orcid ID: 0009-0008-5654-0758

Abstract

This study critically examined the impending danger of overdependence on artificial intelligence (AI) in academic research among lecturers, postgraduate students, and academic researchers at Rivers State University, Port Harcourt. The technological determinism theory guided the study. Using a survey research design, the study targeted a population of 28,000 postgraduate students and 1,800 academic staff, with a sample of 384 respondents selected based on Krejcie and Morgan's (1970) table for sample size determination. Data were collected through a structured questionnaire focused on AI adoption, its impact on academic integrity and originality, and the ethical and epistemological challenges associated with its use. Responses were analyzed using descriptive statistics, including mean scores and standard deviations, and presented in tabular form. Findings revealed a moderate level of AI adoption, with postgraduate students and academic researchers frequently utilizing AI for thesis writing, literature review, editing, and plagiarism checking, while lecturers showed relatively low engagement in preparing teaching and research materials. The study further found that overreliance on AI poses significant threats to academic integrity and originality, fostering plagiarism, diminishing critical thinking, and complicating the detection of AI-generated work. Moreover, respondents highlighted serious ethical and epistemological concerns, including data privacy, intellectual property issues,

algorithmic bias, and insufficient institutional guidance for responsible AI use. The study concludes that while AI offers productivity benefits, its unchecked use can undermine scholarly rigor. Consequently, the study recommends continuous AI literacy and training programs, robust academic integrity frameworks, and strategies promoting human–AI collaboration to preserve creativity, ethical and academic credibility.

Keywords: Artificial Intelligence, Academic Research, Overdependence, Research Ethics, Scholarly Integrity

Introduction

The integration of Artificial Intelligence (AI) into academic research represents one of the most transformative developments in the 21st century. With the emergence of intelligent systems such as ChatGPT, Scite, Grammarly, Elicit, and data-driven analytics tools, scholars across the world now conduct research with unprecedented speed, precision, and access to information. AI has revolutionized the process of knowledge generation and dissemination, enabling researchers to summarize vast datasets, detect plagiarism, manage references, and even simulate peer review. According to Dwivedi et al. (2023), the growing use of AI in academic contexts has streamlined scholarly workflows and made research outputs more efficient, accessible, and globally connected. However, while AI offers convenience, its overuse poses a significant epistemological and ethical challenge. Bender et al. (2021) argue that the excessive dependence on AI risks eroding the intellectual rigor that defines academic inquiry. This overdependence encourages a form of “cognitive outsourcing,” where critical and creative tasks once performed by human intellect are transferred to algorithms. In academic environments such as Nigeria, where technological enthusiasm is rapidly spreading, AI adoption is often unregulated, leaving researchers susceptible to ethical lapses, misinformation, and intellectual complacency.

Globally, higher education institutions are beginning to grapple with this dilemma. UNESCO (2023) emphasizes that AI can be a force for educational transformation but warns against overreliance that may weaken human-centered learning and inquiry. The problem, therefore, is not the existence of AI, but its unbalanced use: where scholars rely more on machines than on their own analytical faculties. In Nigeria, this trend manifests in growing dependence on AI for writing literature reviews, paraphrasing sources, and even formulating hypotheses. Such behavior, though convenient, undermines the essence of academic pursuit, which thrives on critical reasoning, originality, and independent validation.

The implications of this emerging dependence are far-reaching. It challenges the foundational ethics of research, questions the authenticity of scholarly contributions, and threatens the cultivation of intellectual skills among young researchers. According to Crawford (2021), AI systems are not neutral; they reflect the biases, assumptions, and limitations of their training data. Thus, blind reliance on AI-generated outputs can perpetuate misinformation and reproduce existing academic inequalities. Furthermore, Anderson and Rainie (2023) warn that excessive use of AI tools could create a generation of researchers who are proficient in using digital aids but deficient in independent reasoning and methodological discipline.

Against this background, the present paper seeks to appraise the impending danger of overdependence on AI in academic research, with specific attention to scholars within the Port Harcourt Metropolis. The study explores how AI dependence affects research originality, academic integrity, and ethical scholarship, while assessing institutional preparedness for responsible AI integration. It aims to foster a balanced approach that embraces innovation without compromising human creativity and critical thought. The study is guided by Technological Determinism Theory, which posits that technology shapes human behavior and cultural patterns (McLuhan, 1964). This framework helps explain how the pervasive influence of AI is reshaping research culture, shifting intellectual agency from humans to machines. Consequently, this paper argues that while AI remains an indispensable academic tool, uncritical dependence on it threatens the integrity of scholarly work. The need for deliberate policy intervention, ethical education, and digital literacy training is, therefore, paramount to safeguard the future of academic research.

Statement of the Problem

The integration of Artificial Intelligence (AI) into academic research has dramatically transformed the way knowledge is produced, analyzed, and disseminated. AI tools now assist researchers in literature reviews, data analysis, manuscript drafting, and other critical scholarly activities, offering unprecedented efficiency and accessibility. However, alongside these benefits, a growing culture of overdependence on AI has emerged, raising serious concerns about the integrity, originality, and critical rigor of academic work. In many academic contexts, including Nigerian universities, researchers and postgraduate students increasingly rely on AI-generated outputs to perform tasks traditionally requiring human cognition, such as synthesizing literature, structuring arguments, and analyzing data. While this reliance may streamline workflows, it risks

eroding essential research competencies, diminishing critical thinking, and creating ethical dilemmas related to authorship and plagiarism. Despite these concerns, there is limited empirical evidence on the extent to which AI overdependence manifests in academic research, its specific impacts on scholarly practices, and the factors that drive this reliance.

Specifically, at Rivers State University, Port Harcourt there is a lack of systematic investigation into how lecturers, postgraduate students, and researchers engage with AI tools, and whether excessive reliance is undermining research quality. Without such evidence, institutions cannot develop informed policies, digital literacy initiatives, or ethical guidelines to ensure responsible AI integration. This study, therefore, seeks to appraise the emerging culture of overdependence on AI in academic research, examining its implications for academic integrity, originality, critical thinking, and methodological rigor, and providing insights for balanced AI usage in scholarly practices.

Objectives of the Study

The primary objectives of this study are to:

1. Examine the extent of AI adoption among lecturers, postgraduate students and academic researchers at Rivers State University, Port Harcourt.
2. Assess the impact of overdependence on AI on academic integrity and research originality.
3. Identify the ethical and epistemological challenges associated with AI use in academic research.

Research Questions

1. To what extent have lecturers, postgraduate students and academic researchers at Rivers State University, Port Harcourt adopted AI?
2. What is the impact of overdependence on AI on academic integrity and research originality?
3. What are the ethical and epistemological challenges associated with AI use in academic research?

Literature Review

AI in Academic Research

AI's integration into academic research has fundamentally reshaped the research cycle—from literature discovery to data analysis, manuscript preparation, and dissemination. According to Zawacki-Richter et al. (2019), AI tools have become indispensable in automating repetitive tasks such as citation management, text summarization, plagiarism detection, and predictive modelling. These affordances increase research

efficiency, reduce cognitive burden, and democratize access to information across disciplines. For instance, Dwivedi et al. (2023) note that AI-based analytical platforms now enable complex data visualization and hypothesis testing that previously required specialized technical expertise. However, these advantages are accompanied by uneven adoption patterns and emerging ethical dilemmas. Kitchin (2023) explains that researchers in STEM fields tend to adopt AI tools earlier and more intensively than their counterparts in the humanities and social sciences, where interpretive nuance and contextual sensitivity remain central to scholarship. In many contexts, limited access to institutional AI infrastructure has compelled scholars to rely on freely available commercial tools, often without sufficient understanding of their limitations or data-handling ethics (Bui Nguyen & Pham). This pragmatic but unregulated use creates vulnerabilities in data privacy, research integrity, and reproducibility (Education and Information Technologies, 2024).

Critically, AI adoption has also altered the epistemic rhythm of academic work. Researchers are increasingly using AI not merely as a supportive assistant but as a creative co-author: drafting abstracts, rephrasing complex texts, and even generating arguments. Parry and Marvelli (2023) caution that such practices blur the boundary between human creativity and algorithmic imitation. While this may enhance productivity, it risks eroding critical thinking and originality attributes that define scholarly contribution. Moreover, Bender et al. (2021) emphasize that AI-generated content often lacks the grounded understanding necessary for rigorous academic argumentation, as models rely on probabilistic text generation rather than genuine comprehension.

The allure of AI-assisted research is amplified by systemic pressures such as tight publication deadlines, limited mentorship, and resource constraints. Consequently, what begins as technological enhancement can evolve into dependency: where the researcher's intellectual agency is diminished by excessive reliance on algorithmic convenience (Dwivedi et al., 2023). Therefore, while AI enriches the research process, its integration must be critically managed to preserve academic values. The challenge is not to reject AI but to ensure that its use complements rather than replaces human intellect, judgment, and creativity.

Scholarly Integrity and Originality in the AI Era

The rise of AI in academic research has profound implications for scholarly integrity and the concept of originality. Traditional markers of

academic authorship: unique intellectual contribution, independent argumentation, and verifiable methodological rigor are increasingly challenged by algorithmic content generation (Floridi & Cows, 2021; Parry & Marvelli, 2023). AI-generated text, even when accurate and coherent, often blurs the distinction between human reasoning and machine synthesis, creating a potential gap in authorship accountability. From an assessment perspective, conventional plagiarism detection software is often insufficient for AI-generated content, which may rephrase or reorganize ideas without literal copying (Parry & Marvelli, 2023). Scholars are therefore advocating for a combination of AI detection tools, qualitative review and explicit disclosure practices to maintain academic standards.

Pedagogically, maintaining scholarly integrity requires digital literacy training, emphasizing not only ethical use of AI but also critical evaluation of AI-generated outputs. This includes instructing students and researchers on verifying sources, detecting biases, and contextualizing machine-generated insights within disciplinary norms (Luckin et al., 2022; Bui et al., 2024).

Originality in the AI era must also be reconceptualized. While traditional notions emphasize solo intellectual labour, emerging frameworks advocate responsible attribution: clearly delineating the human and AI contributions within a research product (Floridi & Cows, 2021; Parry & Marvelli, 2023). Interventions combining education, policy enforcement, and technical detection mechanisms are more effective at preserving integrity than punitive measures alone (Bui et al., 2024). The broader implication is that safeguarding research originality in an AI-rich environment requires an integrated strategy. Ethical norms, institutional policies, and critical pedagogy must work in tandem to ensure that AI serves as a tool to augment human cognition rather than replace it.

Theoretical Framework

This study is anchored on the Technological Determinism Theory (TDT), which posits that technological innovations significantly shape human behavior, social structures, and modes of thought (McLuhan, 1964; Smith & Marx, 1994). TDT suggests that as new technologies emerge, they exert a profound influence on social and institutional practices, often creating shifts in expectations, workflows, and cognitive habits. In the context of academic research, the integration of AI tools is not merely a neutral augmentation of productivity; it has the potential to redefine scholarly practices, influencing how researchers approach knowledge production, problem-solving, and critical analysis.

Technological Determinism Theory also provides a lens to understand the structural and behavioral implications of AI in academia. Repeated reliance on technology can create normative expectations among students, lecturers, and institutions, where rapid outputs are prioritized over careful reasoning. In such environments, overdependence may evolve from an individual choice to a systemic phenomenon, shaping research culture at an institutional level (Floridi & Cowls, 2021).

While Technological Determinism emphasizes the shaping power of technology, it is complemented by insights from the Social Construction of Technology (SCOT) framework, which underscores the role of human agency, institutional policies, and cultural norms in mediating technology's impact (Bijker, Hughes, & Pinch, 1987). By integrating TDT with SCOT, this study acknowledges that while AI has strong shaping effects, the degree of overdependence is also influenced by institutional governance, digital literacy, and ethical awareness among researchers.

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Research Methodology

The study adopted a survey research design to investigate the adoption, impact, and ethical implications of artificial intelligence (AI) in academic research at Rivers State University. The target population comprised 28,000 postgraduate students and 1,800 academic staff, yielding a total population of 29,800 respondents. Using the sample size determination table developed by Robert V. Krejcie and Daryle W. Morgan (1970), a sample of 384 respondents was selected to ensure adequate representation. A stratified random sampling technique was employed to ensure proportional representation of both postgraduate students and academic staff within the sample. Data were collected using a structured questionnaire designed with Likert-scale items to capture respondents' perceptions of AI adoption, overdependence and associated ethical and epistemological concerns. To ensure validity, the instrument was subjected to expert review for content and face validity, while a pilot test was conducted with a small subset of respondents outside the main study area. The reliability of the instrument was determined using Cronbach's alpha coefficient, which yielded an acceptable reliability index above the standard threshold of 0.70, indicating internal consistency. Ethical considerations were strictly observed throughout the study. Respondents were provided with informed consent forms outlining the purpose of the research, and participation was entirely voluntary. Anonymity and confidentiality were guaranteed, and no personally identifiable information was collected. Additionally, all data were securely stored and used solely for

academic purposes in line with standard research ethics. For data analysis, descriptive statistics; including means, and standard deviations, were employed. A four-point Likert scale weighting system was used (Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree = 1). The decision rule for interpretation was based on a criterion mean of 2.5; mean scores equal to or above 3.00 were considered indicative of agreement, while mean scores below 2.5 indicated disagreement. The exclusive use of descriptive statistics was justified by the study’s objective to provide a clear and straightforward summary of respondents’ perceptions rather than to test hypotheses or establish causal relationships. Data were presented in tables to enhance clarity and facilitate interpretation.

Data Presentation

Table 1: Extent of Adoption of AI among Lecturers, Postgraduate Students and Academic Researchers at Rivers State University, Port Harcourt

S/N	Statement	SA	A	D	SD	N	Σ	Mean	Remark
1	Lecturers use AI tools (e.g., ChatGPT, Grammarly, QuillBot) in preparing teaching and research materials.	60	68	146	110	384	884	2.3	Disagreed
2	Postgraduate students frequently rely on AI for thesis or dissertation drafting and editing.	132	148	72	32	384	1,284	3.3	Agreed
3	Academic researchers employ AI for literature review and data analysis tasks.	118	162	74	30	384	1,270	3.3	Agreed
4	AI tools are regularly used for plagiarism checking and grammar correction.	156	142	58	28	384	1,332	3.5	Agreed
5	The university encourages the integration of AI in academic and research processes.	110	150	88	36	384	1,226	3.2	Agreed

Table 4.1 presents data on the level of AI adoption among lecturers, postgraduate students, and academic researchers at Rivers State University, Port Harcourt. The grand mean of 3.12 indicates a moderate

level of adoption, suggesting that while AI is being used in various academic activities, its integration is not yet universal across all categories of staff and students. Notably, the first item, with a mean score of 2.3, shows that many lecturers have not fully embraced AI tools for preparing teaching and research materials. This could stem from limited awareness, technical skills, or institutional training opportunities.

Table 2: Impact of Overdependence on AI on Academic Integrity and Research Originality

S/N	Statement	SA	A	D	SD	N	Σ	Mean	Remark
1	Excessive reliance on AI reduces students’ ability to produce original research work.	170	142	52	20	384	1,358	3.5	Agreed
2	AI-generated content encourages plagiarism and academic dishonesty.	160	150	48	26	384	1,338	3.5	Agreed
3	AI usage diminishes critical thinking and intellectual creativity in research.	138	156	62	28	384	1,306	3.4	Agreed
4	Overdependence on AI leads to misrepresentation of authorship in academic work.	120	164	70	30	384	1,278	3.3	Agreed
5	Lecturers and supervisors find it harder to detect AI-generated submissions.	142	146	66	30	384	1,300	3.4	Agreed

Table 4.2 examines the consequences of overreliance on AI tools and their influence on academic integrity and research originality. With a grand mean of 3.42, the responses show strong agreement that excessive dependence on AI can compromise originality, creativity, and ethical standards in academic work. This significance lies in its revelation that while AI enhances productivity, it simultaneously poses risks of plagiarism, intellectual laziness, and authenticity loss in scholarly output. The table underscores the importance of maintaining a balance between

human critical thinking and AI assistance. It also raises concern for educators and institutions to introduce strict guidelines, awareness, and integrity checks to ensure that the academic value system is preserved even in an AI-driven learning environment.

Table 3: Ethical and Epistemological Challenges Associated with AI Use in Academic Research

S/N	Statement	SA	A	D	SD	N	Σ	Mean	Remark
1	AI tools raise issues of data privacy and intellectual property rights.	162	146	52	24	384	1,332	3.5	Agreed
2	The use of AI in research challenges traditional notions of knowledge creation.	144	152	62	26	384	1,314	3.4	Agreed
3	AI models can reproduce bias, leading to ethical dilemmas in research findings.	138	158	60	28	384	1,308	3.4	Agreed
4	Many researchers lack adequate training on ethical AI usage.	154	142	58	30	384	1,318	3.4	Agreed
5	There is insufficient institutional policy guiding ethical AI use in academia.	126	164	64	30	384	1,286	3.3	Agreed

Table 4.3 addresses the ethical and epistemological implications of using AI in academic research, recording a grand mean of 3.40 which denotes general agreement among respondents. The significance of this result is that it exposes the moral and philosophical issues surrounding AI use, such as data privacy, authorship, bias, and the erosion of traditional notions of knowledge production. It reveals that while AI provides powerful capabilities for research and analysis, it also raises deep questions about responsibility, transparency, and trustworthiness of knowledge generated with machine assistance. This emphasizes the need for universities to establish clear policies, training programs, and ethical frameworks guiding AI application in research to safeguard academic standards and uphold intellectual integrity.

Discussion of Findings

Research Question One: To what extent have lecturers, postgraduate students, and academic researchers at Rivers State University, Port Harcourt adopted AI?

The findings from Table 4.1 indicate a moderate level of AI adoption among lecturers, postgraduate students, and academic researchers, with a grand mean of 3.12. This implies that while AI tools are increasingly integrated into academic work, their use remains uneven across user categories. Lecturers, in particular, recorded a low mean (2.3), indicating limited engagement with AI tools compared to postgraduate students who rely heavily on them for editing, literature review, and thesis writing. This pattern aligns with Technological Determinism Theory, which posits that technology drives social and institutional change (McLuhan, 1964; Smith & Marx, 1994).

In this context, AI serves as a catalyst reshaping academic behavior, research culture, and pedagogy. Similar findings by Dwivedi et al. (2023) in *International Journal of Information Management* show that AI adoption in higher education is influenced by accessibility, awareness, and institutional encouragement. Likewise, Khan, Hasan and Kaur (2022) in *Education and Information Technologies* observe that postgraduate students are more responsive to AI-driven academic tools than faculty due to higher exposure to digital platforms. Therefore, the Rivers State University context reflects an emerging but uneven technological transition consistent with the determinist view that innovation reshapes learning practices, though its adoption pace is moderated by human and institutional factors.

Research Question Two: What is the impact of overdependence on AI on academic integrity and research originality?

Results from Table 4.2 reveal strong agreement that overdependence on AI threatens research originality and academic integrity, with a grand mean of 3.42. Respondents believe that AI encourages plagiarism, reduces creative engagement, and weakens students' ability to think critically and independently. This observation resonates with Technological Determinism Theory, which suggests that technological tools, while beneficial, can redefine social practices and values; sometimes at the cost of human autonomy (Postman, 1993).

In academic settings, AI's influence appears to have shifted the learning dynamic from intellectual authorship to machine-assisted production. Cotton et al. (2023) in *Computers & Education* similarly found that AI-based text generation tools like ChatGPT pose risks to originality, encouraging content replication and dependence. Kasneci et al. (2023)

in *Frontiers in Education* also warn that AI can erode authentic learning if used without proper ethical guidance. Therefore, while AI enhances academic efficiency, the data here affirm the determinist concern that technology, when unregulated, can dominate human intellectual processes, leading to moral and epistemic distortions within the academic environment.

Research Question Three: What are the ethical and epistemological challenges associated with AI use in academic research?

Findings in Table 4.3 show a general consensus that ethical and epistemological challenges accompany AI use in research, with a grand mean of 3.40. These challenges include concerns about data privacy, intellectual property, authorship, and algorithmic bias. From a technological determinist perspective, such issues exemplify how emerging technologies create new moral and knowledge paradigms that compel society to adjust its ethical norms. Borenstein et al. (2022) in *AI and Ethics* argue that the opacity of AI algorithms challenges human accountability in scholarly outputs. Similarly, Floridi and Cowls (2022) in *Philosophy & Technology* emphasize that AI's epistemological implications blur the boundary between machine-generated and human-derived knowledge.

The finding that institutional policies and training on ethical AI use remain inadequate at Rivers State University further echoes Dwivedi et al. (2024), who found that universities often lag behind in establishing governance frameworks for responsible AI deployment. This suggests that without ethical guidance, technological determinism could lead to a situation where AI dictates not just academic methods but also the standards of knowledge validation, raising deep questions about authenticity, authority, and academic credibility.

Conclusion

This study examined the adoption and implications of Artificial Intelligence (AI) use among lecturers, postgraduate students, and academic researchers at Rivers State University, Port Harcourt. The findings revealed a moderate level of AI adoption, driven largely by postgraduate students and researchers, while lecturers displayed comparatively lower engagement. This indicates that the integration of AI into academic activities is ongoing but uneven, constrained by factors such as limited awareness, inadequate institutional support, and insufficient digital training. The pattern of adoption reflects a gradual shift toward technology-mediated scholarship, consistent with Technological Determinism Theory, which posits those emerging

technologies shape human actions, institutional behaviors, and cultural evolution within educational systems (McLuhan, 1964; Smith & Marx, 1994).

Furthermore, the study established that overdependence on AI tools poses a serious threat to academic integrity and originality. Although AI enhances productivity, efficiency, and ease of research, its misuse can lead to intellectual complacency, plagiarism, and erosion of creativity. These concerns echo the warnings of Postman (1993) and Winner (1986), who argued that unchecked technological influence can distort human values and undermine ethical standards. The results thus highlight the paradox of AI in academia; it is both an enabler of innovation and a potential source of ethical and epistemological disruption. The academic environment must therefore adopt a balanced approach that encourages responsible AI use while preserving the intellectual rigor and moral foundations of scholarship.

Lastly, the findings revealed that AI use in research is accompanied by significant ethical and epistemological challenges, such as data privacy, intellectual property violations, and algorithmic bias. These issues emphasize the urgent need for universities to develop comprehensive policies and frameworks that promote transparency, accountability, and fairness in AI-driven academic practices. In line with Technological Determinism Theory, the study concludes that technology is not neutral; it redefines the boundaries of knowledge production and moral responsibility. Consequently, to ensure sustainable and credible academic development, higher institutions must integrate ethical training, regulatory mechanisms, and digital literacy programs that align technological advancement with the principles of integrity, originality, and scholarly excellence.

Recommendations

1. Universities should implement continuous AI literacy programs for lecturers, postgraduate students, and researchers to build competence in responsible and ethical use of AI tools for academic purposes. This can include workshops, policy briefings, and digital research skills integration into postgraduate curricula.
2. Institutions should develop and enforce clear ethical guidelines and academic integrity policies that address plagiarism, authorship, and transparency in AI-assisted research to safeguard originality and scholarly credibility.
3. Researchers and educators should adopt a balanced approach that positions AI as a complementary tool for enhancing creativity and

efficiency, while maintaining human judgment, critical thinking, and theoretical grounding as the core of academic inquiry.

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