
GENERATIVE ARTIFICIAL INTELLIGENCE TOOLS AND STUDENTS' RESEARCH SKILLS IN PUBLIC UNIVERSITIES IN SOUTH-SOUTH NIGERIA

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ABSTRACT

This study examined the relationship between generative artificial intelligence (AI) tools and students' research skills in public universities in South-South Nigeria. Specifically, the study investigated the relationship between AI content generation, AI paraphrasing tools, and students' research competencies. A correlational survey research design was adopted for the study. The population comprised 126,482 undergraduate students from six selected universities: University of Port Harcourt, University of Uyo, University of Calabar, Rivers State University, Delta State University, and AkwaIbom State University. A sample size of 399 respondents was determined using Taro Yamane's formula, while a multistage sampling technique involving stratified and simple random sampling methods was employed. Data were collected using a structured questionnaire titled *Generative Artificial Intelligence Tools and Students' Research Skills Questionnaire (GAITSRSQ)*, which demonstrated high reliability coefficients ($\alpha = 0.83$ for AI content generation, $\alpha = 0.85$ for AI paraphrasing tools, and $\alpha = 0.88$ for research skills). Data analysis was conducted using Pearson Product Moment Correlation at a 0.05 level of significance. Findings revealed a moderate positive and statistically significant relationship between AI content generation and students' research skills, indicating that students who utilize AI tools for content generation tend to demonstrate

improved abilities in idea development, literature organization, and academic writing. Similarly, a moderate positive and significant relationship was found between AI paraphrasing tools and students' research skills, suggesting that these tools enhance students' ability to rephrase content, improve clarity, and avoid plagiarism. The study concluded that generative AI tools significantly contribute to the development of students' research skills, although their influence is moderate and should be complemented with independent critical thinking and traditional learning approaches. It was recommended that universities promote AI literacy, establish ethical guidelines for AI usage, and integrate responsible AI practices into academic curricula to maximize benefits while minimizing potential drawbacks.

KEYWORDS: Generative artificial intelligence, AI content generation, AI paraphrasing tools, Research skills.

INTRODUCTION

The rapid advancement of digital technology has significantly reshaped the global educational ecosystem, fundamentally altering how knowledge is produced, disseminated, and acquired. Among the most disruptive and transformative innovations of the contemporary digital era is Generative Artificial Intelligence (GAI), which has transitioned from a novel technological experiment into an deeply integrated utility within teaching, learning, and academic research frameworks. Generative AI refers to autonomous, intelligent systems driven by large language models (LLMs) and deep learning algorithms that are capable of producing highly sophisticated, human-like responses, structural outlines, text syntheses, and conceptual explanations based on natural language prompts supplied by users. Today, platforms such as ChatGPT, Gemini, Grammarly AI, QuillBot, Claude, and Microsoft Copilot have evolved past mere novelty; they are now actively utilized by undergraduate and postgraduate students in higher education institutions worldwide as core mechanisms for academic writing, literature mapping, paraphrasing, brainstorming, and real-time research support.

Globally, the adoption of these AI-powered tools by university students is driven by a desire to optimize academic productivity and simplify increasingly complex scholarly tasks. A growing body of international literature indicates that students perceive generative AI technologies not as replacements for human intellect, but as cognitive scaffolds that assist in overcoming writer's block, generating initial conceptual frameworks, refining syntax, and driving overall learning efficiency. For instance, Abbas et al. (2024) observed that university

students extensively leverage generative AI systems for structured academic support, rigorous assignment preparation, and rapid information sourcing. This global shift suggests that the traditional boundaries of independent student research are blurring, giving way to a co-creative paradigm where human cognition interacts continuously with algorithmic outputs. Despite this technological shift, foundational research skills remain the ultimate benchmark of academic success and intellectual rigor in higher education. These competencies are multi-dimensional; they require students to critically identify viable research gaps, systematically review existing literature, evaluate empirical evidence, synthesize divergent viewpoints, and communicate research outcomes through coherent, original scholarly writing. Possessing robust research skills is what allows undergraduate students to transition from passive consumers of information to active contributors to societal problem-solving and knowledge economies. However, navigating this pipeline remains a significant hurdle. In many Nigerian universities, undergraduate students frequently encounter systemic and pedagogical difficulties when conducting comprehensive literature reviews, organizing logical academic arguments, properly paraphrasing source materials, and structuring cohesive research project reports. These persistent deficits often stem from under-resourced library infrastructures, limited exposure to intensive academic writing workshop methodologies, and varying levels of digital literacy.

The emergence of generative AI technologies has thus created a vital, albeit controversial, opportunity to address these long-standing pedagogical challenges. AI-driven content generation tools can alleviate student anxieties by producing contextual essays, structured research summaries, and granular explanations within seconds. By lowering the barrier to technical vocabulary and structural organization, these tools have the potential to boost student self-efficacy, heighten academic confidence, and democratize access to complex data. Supporting this perspective, Sun and Zhou (2024) demonstrated that generative AI integration significantly improved students' academic engagement and performance metrics by providing highly adaptive, personalized learning support.

Concurrently, AI paraphrasing and editing tools (such as QuillBot and Grammarly) have gained massive traction among students looking to restructure convoluted academic texts while preserving their baseline empirical meaning. When deployed constructively, these applications function as automated writing coaches that help non-native English-speaking students reduce grammatical errors, elevate vocabulary, and proactively understand how to rephrase ideas to avoid verbatim plagiarism. As Johnston et al. (2024) discovered, students broadly perceive these AI technologies as highly effective interventions for upgrading the

professional quality of their academic writing and making intimidating, multi-layered research assignments feel highly manageable.

However, this rapid integration has sparked an intense parallel debate regarding the shadow effects of GAI on cognitive development. Academic stakeholders globally and locally express deep concerns regarding systemic student overdependence, widespread academic dishonesty, the erosion of authentic student originality, and a noticeable weakening of independent critical thinking. Skeptics argue that when an AI tool instantly synthesizes literature or constructs a methodology, the student bypasses the productive cognitive struggles, such as wrestling with complex texts, resolving conceptual contradictions, and trial-and-error writing, that are absolutely vital to developing sharp analytical reasoning. Excessive reliance on AI-generated text risks producing a generation of graduates who can prompt an engine effectively, but lack the internal intellectual capacity to critique data, detect biases, or formulate independent hypotheses (Bassey et al., 2025).

Within the specific context of South-South Nigeria, both federal and state universities are experiencing a noticeable upsurge in unmonitored student engagement with these AI applications. Driven by widespread smartphone access and the virtualization of learning resources, undergraduate students in South-South institutions are actively utilizing GAI to navigate their final-year research projects and seminar presentations. Nevertheless, despite the clear visual and anecdotal evidence of this trend across campuses in the region, localized empirical data explicitly mapping the relationship between generative AI usage patterns and the actual quality of students' core research skills remains remarkably sparse. Most existing studies focus heavily on Western or Asian student demographics, leaving a critical contextual gap regarding how Nigerian undergraduates, who face unique infrastructural realities like erratic power supplies and expensive internet data, interact with these tools. To bridge this critical literature gap, this study provides a localized empirical investigation into the utilization of generative artificial intelligence tools and its corresponding relationship with students' research skills within universities in South-South Nigeria.

Statement of the Problem

Research competence among university students has become a growing concern within Nigerian higher education institutions. Many undergraduate students encounter challenges in literature review, academic writing, paraphrasing, referencing, and critical analysis. These deficiencies often affect the quality of students' research projects and scholarly outputs. Therefore, the emergence of generative artificial intelligence tools has introduced

both opportunities and concerns in the academic environment. While AI technologies appear to support students in content generation, idea development, and academic writing, concerns persist regarding overreliance, plagiarism, reduced originality, and weakening of independent research capabilities.

Although several international studies have examined generative AI in educational contexts, empirical evidence remains limited on the relationship between AI content generation, AI paraphrasing tools, and students' research skills in universities in South-South Nigeria. Consequently, this study sought to investigate the relationship between generative artificial intelligence tools and students' research skills in public universities in South-South Nigeria.

Purpose of the Study

The main purpose of this study was to investigate generative artificial intelligence tools and students' research skills in public universities in South-South Nigeria. Specifically, the study sought to:

1. Determine the relationship between AI content generation and students' research skills in public universities in South-South Nigeria;
2. Examine the relationship between AI paraphrasing tools and students' research skills in public universities in South-South Nigeria.

Research Questions

The following research questions were asked to elicit responses from the subjects:

1. What is the relationship between AI content generation and students' research skills in public universities in South-South Nigeria?
2. What is the relationship between AI paraphrasing tools and students' research skills in public universities in South-South Nigeria?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

HO₁: There is no significant relationship between AI content generation and students' research skills in public universities in South-South Nigeria.

HO₂: There is no significant relationship between AI paraphrasing tools and students' research skills in public universities in South-South Nigeria.

Theoretical Framework

Technology Acceptance Model (TAM) by Fred Davis (1989)

The Technology Acceptance Model (TAM) was developed by Fred Davis in 1989 as a framework to understand the factors influencing user decisions regarding technology adoption. Central to TAM are two key constructs: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness refers to the degree to which a person believes that using a particular technology will enhance their job performance, while perceived ease of use denotes the degree to which a person perceives that using the technology will be free from effort. According to the model, individuals are more inclined to embrace new technologies when they believe such systems can not only enhance their productivity but also simplify their daily tasks. This model is particularly relevant in today's rapidly evolving technological landscape, where users encounter myriad tools and platforms. The insights gained from TAM reveal why certain technologies become popular, as individuals prioritize solutions that meet their needs for efficiency and user-friendliness.

In the context of the present study, the relevance of TAM is apparent in the increasing acceptance and utilization of generative AI tools among university students. These students are drawn to AI technologies for content generation and paraphrasing because they perceive these tools as both useful and accessible. They recognize that generative AI can significantly aid their academic research, enhance the quality of their writing, and streamline the process of gathering and organizing information. Thus, the acceptance of generative AI aligns closely with the constructs of TAM, illuminating how perceptions shape users' interactions with new technologies.

Constructivist Learning Theory by Jean Piaget (1936)

Constructivist Learning Theory was developed by Jean Piaget (1936), who argued that learners actively construct knowledge through interaction with their environment rather than passively receiving information. This theory asserts that learning is not a passive process; instead, individuals build understanding through interaction, personal experiences, and critical engagement with information. Key aspects of constructivism include the significance of social interaction, the importance of context, and the role of cultural tools in cognitive development. In practical terms, this means that learners are not merely recipients of information but active participants in their own learning journeys. They create meaning by

synthesizing new information with prior knowledge, often through collaborative discussions and hands-on experiences that promote deeper understanding.

The relevance of Constructivist Learning Theory to this study lies in the transformative potential of generative AI technologies to create interactive learning experiences. These tools enable students to delve into complex concepts, refine their academic ideas, and engage more dynamically with research material. For instance, AI-driven platforms can provide personalized feedback, collaborative writing environments, and resources tailored to the learners' individual progress, fostering an active and engaged approach to academic writing and research.

Conceptual Clarifications

Generative Artificial Intelligence Tools and Students' Research Skills

The rapid advancement of Generative Artificial Intelligence (AI) technologies has significantly transformed the manner in which students engage with academic and research-related tasks. Generative AI tools possess the capability to produce human-like text, summaries, explanations, and paraphrased content through the application of sophisticated machine learning algorithms and Natural Language Processing (NLP) techniques. These technologies are trained on extensive datasets and are designed to generate coherent responses based on user prompts. Their emergence has introduced new opportunities and challenges in higher education, particularly regarding students' research skills, academic writing practices, and learning experiences (Kasneji et al., 2023).

Generative Artificial Intelligence Tools

Generative Artificial Intelligence tools are advanced digital systems capable of creating original content that resembles human-generated text. These tools function by identifying patterns within large volumes of data and generating new outputs based on those learned patterns. Consequently, they have become valuable resources for students, researchers, and educators in facilitating academic tasks such as idea generation, content development, literature exploration, and knowledge acquisition.

AI-Assisted Content Generation

AI-assisted content generation refers to the utilization of artificial intelligence applications to create academic content such as essays, summaries, research outlines, explanations, and preliminary research ideas. The growing adoption of these tools among students has

enhanced productivity, improved access to information, and facilitated the academic writing process. Generative AI applications serve as digital assistants by helping students overcome writer's block, organize ideas, and understand complex concepts through simplified explanations (Dwivedi et al., 2023).

The integration of AI-assisted content generation into academic activities has the potential to improve learning efficiency and research productivity. However, scholars have emphasized the need for responsible and ethical usage to ensure that students continue to develop independent critical thinking and scholarly competence rather than becoming excessively dependent on automated systems (Tlili et al., 2023).

Examples of commonly used AI-assisted content generation tools include:

- ❖ ChatGPT
- ❖ Gemini
- ❖ Claude
- ❖ Microsoft Copilot

AI-Assisted Paraphrasing Tools

AI-assisted paraphrasing tools are intelligent systems specifically designed to reformulate existing texts while preserving their original meanings. These applications assist students in improving sentence construction, simplifying complex academic language, correcting grammatical errors, and reducing instances of unintentional plagiarism. Through the provision of alternative expressions and vocabulary choices, paraphrasing tools enable students to communicate ideas more effectively while maintaining academic integrity (Kasneci et al., 2023).

The increasing popularity of AI paraphrasing tools in higher education reflects their usefulness in enhancing academic writing quality and improving students' confidence in written communication. Nevertheless, their effectiveness depends on students' ability to critically evaluate and appropriately adapt the generated outputs rather than accepting them without scrutiny.

Examples of widely utilized AI-assisted paraphrasing tools include:

- ❖ QuillBot
- ❖ Grammarly AI
- ❖ Wordtune
- ❖ Paraphraser.io

Students' Research Skills

Students' research skills refer to the collection of competencies required for effective scholarly inquiry, knowledge generation, and academic investigation. These skills are fundamental to success in higher education because they enable students to identify research problems, gather and evaluate information, analyze evidence, and communicate findings systematically.

Research skills have become increasingly important within contemporary academic environments characterized by rapid technological advancements and information abundance. The emergence of Generative AI tools presents both opportunities and challenges for the development of these competencies. While AI technologies can facilitate information retrieval, literature synthesis, and academic writing, they also require students to exercise critical judgment and ethical responsibility when utilizing generated outputs (Zawacki-Richter et al., 2019). For the purpose of this study, students' research skills are operationalized through the following dimensions:

Literature Review Skills

Literature review skills refer to the ability of students to systematically identify, evaluate, synthesize, and integrate relevant scholarly literature to establish the theoretical and empirical foundations of a research study. Effective literature review skills enable students to identify knowledge gaps, justify research problems, and develop conceptual understanding of their areas of investigation.

Academic Writing Skills

Academic writing skills involve the ability to communicate scholarly ideas in a clear, coherent, logical, and evidence-based manner. These skills encompass proper organization of content, effective argumentation, adherence to academic conventions, and appropriate use of language and citation practices.

Information Sourcing Skills

Information sourcing skills refer to the ability of students to locate, access, retrieve, and evaluate credible information from various academic databases, digital libraries, journals, books, and other scholarly sources. These skills enable researchers to distinguish reliable information from questionable sources.

Critical Analysis Skills

Critical analysis skills involve the capacity to evaluate information objectively, identify assumptions and biases, assess the validity of evidence, compare competing perspectives, and

draw logical conclusions. These skills are essential for producing high-quality research and informed scholarly judgments.

Referencing Skills

Referencing skills refer to students' ability to accurately acknowledge and document sources of information using recognized citation styles such as APA, MLA, Chicago, or Harvard referencing formats. Effective referencing promotes academic integrity, prevents plagiarism, and enhances the credibility of scholarly work.

Literature Review

Abbas et al. (2024) examined the causes and consequences of generative artificial intelligence usage among university students. The study explored the factors motivating students to adopt AI technologies in their academic activities and the implications of such adoption for learning outcomes. The findings revealed that students primarily utilize generative AI tools to improve academic productivity, enhance assignment quality, and reduce the time required to complete academic tasks. The study further demonstrated that AI applications support students in generating ideas, organizing academic content, and improving written communication. However, the researchers cautioned that excessive dependence on AI technologies may reduce students' engagement in independent learning and critical thinking processes. The study concluded that while generative AI offers substantial benefits for academic efficiency, its integration into higher education should be accompanied by policies that encourage responsible and ethical usage.

Johnston et al. (2024) investigated students' perceptions and experiences regarding the use of generative artificial intelligence technologies in higher education institutions. The study sought to understand how students view the usefulness and effectiveness of AI-powered academic tools in supporting their educational activities. Findings indicated that students generally perceive generative AI technologies as valuable learning resources that simplify complex academic tasks and improve the quality of academic writing. Participants reported that AI tools assist them in brainstorming ideas, clarifying difficult concepts, summarizing information, and refining written assignments. The study also found that students appreciated the accessibility and convenience provided by AI applications, particularly in situations requiring immediate academic support. The researchers concluded that generative AI technologies have the potential to complement traditional learning methods and contribute positively to students' academic experiences when used appropriately.

Sun and Zhou (2024) conducted a comprehensive meta-analysis on the relationship between generative artificial intelligence and academic achievement among college students. The study synthesized evidence from multiple empirical investigations to determine the overall impact of AI-supported learning on students' educational outcomes. The findings revealed that the integration of generative AI tools into learning environments significantly improves students' academic performance, engagement, and motivation. The analysis further showed that students who utilized AI-supported learning resources demonstrated higher levels of participation in academic activities and greater achievement compared to those who relied solely on conventional learning approaches. The researchers argued that AI technologies provide personalized learning experiences, facilitate access to information, and support effective knowledge acquisition. Consequently, the study emphasized the importance of incorporating AI-based educational technologies into higher education curricula to enhance student learning outcomes.

Qu et al. (2024) examined disciplinary differences in undergraduate students' engagement with generative artificial intelligence technologies across various academic fields. The study focused on understanding how students from different disciplines utilize AI tools and the factors influencing their adoption. Findings revealed significant variations in AI usage patterns among students depending on their academic specialization. Students in technology-related disciplines exhibited higher levels of engagement with AI applications due to greater familiarity with digital technologies, while students in social sciences and humanities primarily used AI tools for writing support and information retrieval. Despite these disciplinary differences, the study highlighted the growing integration of generative AI technologies across all areas of higher education. The researchers concluded that AI has become an increasingly important component of contemporary academic environments and recommended the development of institutional guidelines to ensure its effective and ethical utilization.

Zhou et al. (2024) investigated the relationship between generative AI self-regulation and higher-order cognitive skills among university students. Specifically, the study examined how students' ability to regulate and manage their use of AI technologies influences critical thinking and problem-solving capabilities. The findings demonstrated that generative AI self-regulation significantly enhances students' critical thinking, analytical reasoning, and problem-solving abilities. Students who consciously monitored, evaluated, and reflected on AI-generated outputs were more likely to develop deeper understanding of academic content and demonstrate stronger cognitive performance. The study further revealed that effective

self-regulation helps students avoid overreliance on AI systems and encourages active engagement with learning materials. Based on these findings, the researchers recommended that higher education institutions should promote digital literacy and self-regulated learning strategies to maximize the educational benefits of generative artificial intelligence technologies.

Methodology

This study adopted a correlational survey research design to examine the relationship between generative artificial intelligence tools and students' research skills in selected public universities in South-South Nigeria. The study was conducted in six selected federal and state universities within the region, namely the University of Port Harcourt, University of Uyo, University of Calabar, Rivers State University, Delta State University, and Akwalbom State University. The population of the study comprised 126,482 undergraduate students drawn from these institutions, with population figures obtained from the respective academic planning units for the 2024/2025 academic session. A sample size of 399 respondents was selected using Taro Yamane's formula, while a multistage sampling procedure involving stratified and simple random sampling techniques was employed to ensure adequate representation of students across the selected universities. Data for the study were collected using a structured questionnaire titled "Generative Artificial Intelligence Tools and Students' Research Skills Questionnaire (GAITSRSQ)." The instrument was divided into three sections, namely Section A, which elicited demographic information from respondents; Section B, which measured dimensions of generative artificial intelligence tools; and Section C, which assessed students' research skills. Responses were obtained using a four-point Likert rating scale. To ensure the validity of the instrument, it was subjected to face and content validation by experts in Educational Technology and Measurement and Evaluation. The reliability of the instrument was established using the Cronbach's Alpha reliability technique, which yielded coefficients of 0.83 for AI Content Generation, 0.85 for AI Paraphrasing Tools, and 0.88 for Students' Research Skills, indicating that the instrument possessed a high degree of internal consistency and was suitable for the study. To answer the research questions and test the hypotheses at the 0.05 level of significance, data collected were analyzed using Pearson Product Moment Correlation with the aid of the Statistical Package for Social Sciences (SPSS).

RESULTS

Research Question 1

What is the relationship between AI content generation and students' research skills in public universities in South-South Nigeria?

Table 1: Pearson Correlation between AI Content Generation and Students' Research Skills. (n=399)

Variables	n	r	Sig. (2-tailed)
AI Content Generation	399	0.62	0.000
Students' Research Skills	399		

The result in Table 1 indicates a moderate positive correlation between AI content generation and students' research skills ($r = 0.62$). The p-value of 0.000 is less than the 0.05 level of significance, showing that the relationship is statistically significant. This implies that students who frequently use AI content generation tools tend to demonstrate better research capabilities, such as idea development, literature search, structuring of academic work, and synthesis of information. The positive direction of the relationship suggests that AI tools may serve as academic support systems, helping students improve the quality and efficiency of their research processes. However, the relationship being moderate (not strong) indicates that AI is not the only determinant of research skills; other factors like academic training, supervision, and personal effort also play important roles.

Research Question 2

What is the relationship between AI paraphrasing tools and students' research skills in public universities in South-South Nigeria?

Table 2: Pearson Correlation between AI Paraphrasing Tools and Students' Research Skills. (n=399)

Variables	n	r	Sig. (2-tailed)
AI Paraphrasing Tools	399	0.54	0.000
Students' Research Skills	399		

Table 2 shows a moderate positive relationship between AI paraphrasing tools and students' research skills ($r = 0.54$, $p < 0.05$). This means that increased use of AI paraphrasing tools is associated with improved research skills among students. In practical terms, AI paraphrasing tools appear to assist students in rewording academic content, avoiding plagiarism, and improving clarity of expression. This can enhance students' writing quality and confidence in academic work. Nevertheless, the moderate strength of the relationship suggests that over-

reliance on paraphrasing tools without critical understanding may limit deeper learning. Therefore, while beneficial, these tools should be used as complements rather than substitutes for genuine research effort.

Hypotheses Testing

Hypothesis 1

There is no significant relationship between AI content generation and students' research skills in public universities in South-South Nigeria.

Table 3: Test of Relationship between AI Content Generation and Students' Research Skills. (n=399)

Variables Pair	n	r	Sig. (2-tailed)	Decision
AI Content Generation & Research Skills	399	0.62	0.000	Reject Ho

The result shows that $r = 0.62$ with a p-value of 0.000, which is less than the significance level of 0.05. Therefore, the null hypothesis is rejected. This indicates that there is a statistically significant relationship between AI content generation and students' research skills. The implication is that AI content generation tools play a meaningful role in shaping how students conduct research. Students who engage with these tools are more likely to develop better organization of ideas, improved access to information, and enhanced academic writing structure. However, the moderate strength suggests that while AI contributes positively, it does not fully replace traditional learning methods and independent critical thinking.

Hypothesis 2

There is no significant relationship between AI paraphrasing tools and students' research skills in public universities in South-South Nigeria.

Table 4: Test of Relationship between AI Paraphrasing Tools and Students' Research Skills. (n=399)

Variables Pair	n	r	Sig. (2-tailed)	Decision
AI Paraphrasing Tools & Research Skills	399	0.54	0.000	Reject Ho

The findings reveal that $r = 0.54$ and $p = 0.000$, which is below the 0.05 threshold. Thus, the null hypothesis is rejected. This means that there is a significant relationship between AI paraphrasing tools and students' research skills. The positive relationship suggests that paraphrasing tools help students refine their academic writing, improve originality, and better understand how to present ideas in their own words. However, the moderate correlation

indicates that excessive dependence on such tools without comprehension may hinder the development of independent writing and analytical skills. Hence, these tools should be used responsibly as learning aids rather than shortcuts.

DISCUSSION OF FINDINGS

AI Content Generation and Students' Research Skills

The findings of this study revealed that there is a moderate positive and statistically significant relationship between AI content generation and students' research skills in public universities in South-South Nigeria ($r = 0.62$, $p < 0.05$). This indicates that students who make use of AI content generation tools tend to exhibit better research skills compared to those who use them less frequently. The moderate strength of the relationship suggests that AI content generation contributes meaningfully, but not exclusively, to the development of research skills. Specifically, students who utilize these tools are likely to benefit in areas such as idea generation, literature search, organization of academic work, and synthesis of information. AI tools appear to support students in structuring their research, generating outlines, and improving the clarity and coherence of their academic writing.

However, because the relationship is not strong, the finding also implies that AI content generation is only one of several factors influencing research skills. Other important contributors may include formal instruction, supervision, personal effort, critical thinking ability, and prior academic experience. This suggests that while AI tools enhance research processes, they do not replace the need for independent intellectual engagement. This finding is consistent with Abbas, Jam, and Khan (2024), who reported that generative AI tools improve students' academic productivity and quality of assignments. Similarly, Sun and Zhou (2024) found that AI-supported learning environments enhance students' engagement and academic performance. The result also aligns with Qu et al. (2024), who highlighted the growing role of generative AI in improving students' learning experiences. Overall, the implication of this finding is that AI content generation tools can serve as valuable academic support systems, but their effectiveness depends on how responsibly and critically they are used by students.

AI Paraphrasing Tools and Students' Research Skills

The study further revealed a moderate positive and statistically significant relationship between AI paraphrasing tools and students' research skills ($r = 0.54$, $p < 0.05$). This suggests that students who frequently use AI paraphrasing tools tend to demonstrate improved

research-related writing skills. The moderate correlation indicates that AI paraphrasing tools play a supportive role in enhancing students' ability to rephrase ideas, improve clarity of expression, and avoid plagiarism. These tools expose students to alternative sentence structures and vocabulary, which can contribute to better academic writing and more effective scholarly communication. As a result, students may become more confident in presenting research findings and organizing written work.

Nevertheless, the moderate strength of the relationship also implies that paraphrasing tools alone do not guarantee strong research skills. Over-dependence on such tools without proper understanding may limit students' development of critical thinking, originality, and independent writing ability. Therefore, while these tools are beneficial, they should be used as complements to learning rather than substitutes for genuine academic effort. This finding supports Johnston et al. (2024), who found that students perceive AI tools as helpful for improving academic writing and refining assignments. It is also consistent with Zhou et al. (2024), who reported that proper use of AI technologies enhances critical thinking and problem-solving skills. Furthermore, Kasneci et al. (2023) emphasized that AI-assisted writing tools improve clarity and coherence in students' academic work. In summary, AI paraphrasing tools contribute positively to students' research skills, particularly in writing and presentation, but their impact remains moderate, reinforcing the importance of balanced and ethical use.

CONCLUSION

Based on the findings of this study, it was concluded that generative artificial intelligence tools significantly relate to students' research skills in public universities in South-South Nigeria. The study established that the utilization of AI content generation and AI paraphrasing tools contributes positively to the development of essential research competencies among undergraduate students. Specifically, students who effectively engage with AI-powered technologies tend to demonstrate improved academic writing abilities, enhanced literature review skills, better information sourcing capabilities, and greater proficiency in organizing and synthesizing research materials. The findings suggest that generative AI tools serve as valuable academic support systems that facilitate knowledge acquisition, improve learning efficiency, and enhance the overall quality of scholarly outputs. Furthermore, the study revealed that AI content generation tools assist students in generating research ideas, developing coherent academic content, and understanding complex concepts, thereby improving their ability to undertake research-related tasks. Similarly, AI paraphrasing

tools were found to support students in refining academic expressions, improving clarity of communication, and producing scholarly documents that conform to accepted academic standards. These benefits contribute significantly to the enhancement of students' research productivity and academic performance.

The study further concludes that while generative AI technologies provide substantial opportunities for improving research skills, their effectiveness largely depends on the manner in which they are utilized. Ethical, responsible, and guided use of AI tools is essential to ensure that students develop independent critical thinking, analytical reasoning, and problem-solving abilities rather than becoming overly dependent on automated systems. Therefore, generative artificial intelligence should be viewed as a complementary educational resource that supports, rather than replaces, students' intellectual engagement in the research process. When properly integrated into higher education, AI technologies possess considerable potential to strengthen research capacity, improve academic outcomes, and prepare students for participation in an increasingly digital and knowledge-driven society.

Recommendations

The following recommendations were made:

1. Universities should organize AI literacy programmes for students and lecturers.
2. Institutions should establish ethical guidelines regulating AI usage in academic research.
3. Lecturers should integrate responsible AI utilization into research methodology courses.
4. Students should combine AI-assisted learning with independent critical thinking.
5. Universities should provide digital support centres for ethical AI engagement.

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