

The Silent Partner: Exploring the Use of Artificial Intelligence in Student Research at a Nigerian University

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Abstract

Background: The advancement of AI has significantly transformed various domains, including research. It offers unprecedented opportunities for improving research productivity. However, in Nigeria, AI adoption for research among undergraduates remains an emerging phenomenon, with promising prospects and inherent challenges.

Purpose: The study examined the level of awareness of AI research tools, the extent of their utilization, their perceived benefits in research, and the challenges encountered in applying these tools among engineering undergraduates in Osun State University, Osogbo.

Methodology: The study employed a descriptive research design. The population consisted of 545 engineering undergraduates. The sample size was 219, selected through stratified random sampling. Data were collected using a questionnaire and analysed using descriptive statistics.

Results: The findings revealed a high level of awareness and utilization of AI applications such as Grammarly, QuillBot, and plagiarism detection software. The students acknowledged that these tools enhanced research efficiency, improved academic writing quality, and reduced workload. However, challenges such as limited access to premium software, inadequate training, poor internet connectivity, and ethical concerns were identified.

Conclusion: The prospects of AI use for research among students are substantial, as it has become a valued component of the students' research tool kit. However, this positive trajectory is affected by challenges that need to be addressed by relevant stakeholders.

Implications: Nigerian universities and indeed all tertiary institutions of learning should integrate AI literacy into research methodology curricula, invest in digital infrastructure, and establish clear ethical guidelines to ensure that AI serves as a responsible partner in student research.

Keywords: Artificial Intelligence, Research Tools, Awareness, Utilisation, Undergraduate Students.

Background to the Study

Research is a systematic method of inquiry that involves the processes of problem identification, literature review, data collection, analysis and interpretation, with the view to recommending viable solutions to identified problems. According to Abubakar and Akor (2017), research is a systematic process of inquiry aimed at generating new knowledge, solving problems, or validating existing theories through rigorous investigation and analysis. This involves the collection, organization, and interpretation of data using established methodologies to provide meaningful insights into specific phenomena.

While research can be part of our everyday

activity, it is an integral part of tertiary education, whether at the undergraduate or graduate level. Students at any level are usually required to carry out a research project as part of the requirements for the award of academic degrees (Onuoha & Madu, 2025). As noted by Adetayo (2024), research serves as a fundamental pillar of academic development, enabling students to explore concepts critically, contribute to existing knowledge, and develop essential analytical skills. Research is a crucial academic exercise that fosters independent thinking, problem-solving abilities, and intellectual growth (Madu et al, 2019).

Traditionally, students rely on manual ideation, data collection, literature review, and statistical computations, which can be time consuming

and prone to errors. However, the integration of AI in research has introduced more efficient techniques that automate these processes, reducing the cognitive and logistical burden on students, while improving research accuracy and depth (Moustapha & Yusuf, 2023).

The advancement of Artificial Intelligence (AI) technology in recent years has significantly transformed various domains, including education and research, offering unprecedented opportunities for improving research productivity. AI applications offer a range of tools that can enhance research processes, from idea generation to presentation of findings. AI applications, such as machine learning, natural language processing, and automated data analysis, have revolutionized how researchers conduct experiments, analyze data, and generate insights (Isiaka, 2023). In higher education, AI applications support students in conducting efficient and comprehensive research, thereby improving academic outcomes and innovation (Ayanwale et al., 2022). The adoption of AI for research among final-year undergraduates remains an emerging phenomenon, with promising prospects and inherent challenges. Understanding the impact of AI in this context is crucial for improving its implementation and maximizing its benefits.

AI, as defined by Frankenfield (2021), refers to the simulation of human intelligence in computers, enabling them to think and act like humans. It also encompasses machines that exhibit human-like characteristics such as learning and problem-solving. Similarly, Moustapha and Yusuf (2023) describe AI as a collection of technologies that allow machines to function at an advanced level of intelligence, comparable to human cognition. The application of AI in research offers several prospects, including enhanced data processing capabilities, automation of repetitive tasks, and improved decision-making, based on predictive analytics (Omotayo & Egbetokun, 2021). AI-powered tools such as plagiarism detection software,

reference management systems, and intelligent tutoring systems have made it easier for students to conduct thorough and accurate research (Adetomiwa et al., 2023). AI-driven search engines and digital libraries provide instant access to vast academic resources, which significantly reduce the time required for literature reviews and data collection (Moustapha & Yusuf, 2023).

Despite these benefits, the application of AI in research faces several challenges, such as the lack of awareness and technical knowledge among students, regarding the effective use of AI tools (Olalekan & Okon, 2021). Many undergraduates seem to rely on traditional research methods and are either unaware of or skeptical about AI-driven technologies. This knowledge gap could limit the full exploitation of AI in academic research. This study investigated the awareness and use of AI applications for research among engineering undergraduates in Osun State University, Oshogbo.

Statement of the Problem

Artificial Intelligence (AI) has emerged as a transformative tool with the potential to enhance undergraduate research. It simplifies complex tasks, improves data accuracy, and expands access to vast academic resources. Therefore, AI-powered research tools such as automated literature review systems, predictive analytics, and intelligent data visualization are expected to enable students to conduct high-quality research with greater efficiency and precision. However, recent evidence indicates that many undergraduates possess low awareness and limited understanding of AI applications in research (Abramova, 2025). Consequently, despite the availability of AI tools, many students continue to rely on traditional and often tedious research processes (Rismanchian et al., 2026).

The accessibility of AI-powered tools is further hindered by multiple barriers. Inadequate digital

infrastructure and socioeconomic disparities create a significant digital divide, as lower-income students primarily rely on smartphones and free AI tools, while higher-income peers have greater access to laptops and premium features (Peña et al., 2025). Additionally, lack of clear institutional support and guidelines leaves students confused and without coherent frameworks for responsible AI use (Chan, 2023).

Beyond access and awareness, ethical concerns such as risk of plagiarism, data manipulation, and biases in AI-generated content remain significant challenges. Without proper guidance, students may misuse AI tools, leading to academically questionable research outputs that compromise the integrity of scholarly work and overall academic development (Sinclair, 2025). Furthermore, failure to embrace equitable AI integration in research could widen the existing digital divide, leaving students from less technologically advanced or lower-income backgrounds at a permanent disadvantage, compared to their counterparts in more resourced settings (Hug & McKay, 2025; Peña et al., 2025; Westermann & van Dijck, 2025). Therefore, this study sought to examine the awareness and use of AI applications for research among engineering undergraduates in Osun State University, Oshogbo, with the view to unveiling actionable strategies that could lead to more profitable and ethical use of AI for research among students:

Research Objectives.

1. Determine the level of awareness of AI research tools among undergraduates in Osun State University, Oshogbo.
2. Examine the extent of AI utilization in research by undergraduates in Osun State University, Oshogbo.
3. Assess the impacts of AI applications in research among undergraduates in Osun State University, Oshogbo.
4. Identify the challenges faced by undergraduates in Osun State University,

Oshogbo, in the application of AI in research.

Research Questions.

1. What is the level of awareness of AI research tools among undergraduates in Osun State University, Oshogbo?
2. What is the extent of AI utilization in research by undergraduates in Osun State University, Oshogbo?
3. What are the impacts of AI applications in research among undergraduates in Osun State University, Oshogbo?
4. What are the challenges faced by undergraduates in Osun State University, Oshogbo, in the applications of AI in research?

Review of Related Literature

The integration of Artificial Intelligence (AI) into educational systems has generated substantial empirical evidence documenting both its transformative potential and implementation challenges. A growing body of research reveals that AI technologies are reshaping research processes across global higher education institutions. A study by Ansah and Boateng (2023) at the University of Ghana, shows that AI use for research reduced literature review time by 40% while maintaining academic rigor. However, the study also noted concerning trends, with 34% of participants showing decreased ability to evaluate source credibility independently, after prolonged AI use. This finding aligns with broader concerns about the potential erosion of fundamental research competencies when technology replaces rather than supplements traditional skills development.

According to Liu et al. (2025), awareness of AI among university students, particularly in Science, Technology, Engineering and Mathematics (STEM) fields, is notably high. Studies indicate that engineering students are generally aware of the existence and broad potential of AI technologies (Alam & Ahmad,

2023; Chiu et al., 2023). This awareness is often cultivated through mainstream media, popular culture, and introductory computing courses. However, the awareness tends to be broad rather than deep, with students frequently combining narrow AI applications like chatbots and recommendation algorithms with general AI. The specific awareness of AI tools designed for academic research beyond popular platforms like ChatGPT, is more limited (Crawford & Cowling, 2024). For instance, knowledge of AI-powered literature review assistants such as Elicit, Litmaps, Consensus, and Research Rabbit; specialized data analysis tools like Julius, or AI-enhanced simulation software, is not yet widespread among undergraduates (Onuoha & Madu, 2025). This suggests a gap between recognizing AI as a societal phenomenon and understanding its specific utility within scholarly workflows.

Regarding use, the literature identifies a clear concentration on specific, accessible applications. Large Language Model (LLM)-based chatbots, primarily ChatGPT, have become the most commonly used AI tools among engineering undergraduates for research-related tasks (Farrokhnia et al., 2023). Their primary uses include brainstorming research topics, simplifying complex engineering concepts, debugging code, literature summarization and initial drafting of reports or papers. The use is often instrumental and task-oriented, aimed at improving efficiency rather than enabling fundamentally new research approaches (Kasneji et al., 2023). However, this adoption is not uniform; significant disparities exist based on factors such as institutional resources, faculty encouragement, and individual digital literacy. Students in well-resourced universities with AI-integrated curricula demonstrate more sophisticated use patterns compared to those in institutions where such integration is lacking (Zhai, 2024).

A critical analysis reveals a tension between the perceived benefits and significant challenges of AI use. Engineering students report that AI tools

accelerate information retrieval, enhance understanding through interactive dialogue, and aid in overcoming writer's block, thereby reducing cognitive load during the initial stages of research (Chiu et al., 2023). However, the literature consistently flags profound concerns. A major issue is the development of critical evaluation skills. Students often display "automation bias," over-relying on AI-generated content without sufficient verification, leading to the propagation of inaccuracies or "hallucinations" common in LLMs (Crawford & Cowling, 2024). This is particularly dangerous in engineering, where factual precision is essential. Furthermore, ethical dilemmas are at the forefront. Studies document widespread anxiety and confusion regarding academic integrity, specifically around plagiarism, proper attribution of AI-generated content, and the delineation between legitimate assistance and unethical outsourcing of intellectual work (Perkins, 2023). Many students operate in a policy vacuum, as institutional guidelines on AI use in research are often underdeveloped or non-existent.

The literature also points to a notable skills gap. While students may use AI, they frequently lack the foundational skills in information literacy, research methodology, and disciplinary knowledge necessary to use these tools effectively and critically. Effective use of AI for research is not a passive activity; it requires the ability to formulate precise prompts, refine outputs, and cross-check AI-generated information with authoritative sources (Zhai, 2024). This highlights a need for "AI literacy" that goes beyond mere tool usage to encompass evaluation, ethical reasoning, and integration into a robust research process. The blend of these findings indicates that current use is largely opportunistic and unstructured, driven by student initiative rather than formal academic design.

In Nigeria, studies on AI integration in research are still emerging. While global literature provides a robust framework, a pronounced

research gap exists regarding the specific context of Nigeria.

The Nigerian engineering education landscape presents unique mediating variables that are underexplored. This includes the extent of AI integration into national engineering accreditation standards, and the awareness and preparedness of both faculty and students, to deploy AI for research purposes (Sanusi et al. 2024). This present study therefore investigated the awareness and utilization of AI applications for research among engineering undergraduates in Osun State University, Osogbo, Nigeria.

Theoretical Framework

This study is anchored on the Technology Acceptance Model (TAM), developed by Davis (1989). The model provides a robust theoretical foundation for examining students' adoption of Artificial Intelligence (AI) tools in academic research (Abramova, 2025). TAM proposes that two primary beliefs determine technology acceptance. These beliefs are perceived usefulness (PU) and perceived ease of use (PEOU). Whereas PU entails the extent to which users believe a technology will enhance their performance, PEOU refers to the degree to which using the technology is perceived as free from effort (Davis, 1989).

In the context of student research, perceived usefulness reflects whether students believe AI tools can improve their research quality, efficiency, and accuracy. Perceived ease of use captures students' perceptions of how accessible, intuitive, and user-friendly these AI applications are for conducting research (Li, et al., 2026). These two perceptual constructs work together to shape students' attitudes toward AI tools, ultimately influencing their behavioral intention to adopt and actually use these technologies in their research workflows.

TAM has been extensively validated and applied across educational technology contexts, including AI-powered learning platforms, intelligent tutoring systems, and generative AI tools in higher education (Al-Emran & Granić,

2025; Li et al, 2026; Pratama & Sari; 2025). Applying TAM as the theoretical framework for this research enabled systematic investigation of students' awareness, engagement and perceptions of AI usefulness and ease of use influence their research practices.

Methodology

The study employed a descriptive research design. The study population consisted of all 400 and 500 level engineering undergraduate students at Osun State University's Osogbo Campus, totaling 545. The 400 and 500 level students were chosen because they have advanced in their programs and are at the stage that requires enormous research engagements. The sample size for the study was 219, selected through two stage sampling techniques. At first, purposive sampling was employed to select only 400 and 500 levels among the students. At the second stage, a stratified random sampling technique was adopted to maintain departmental representation. 40% of the population of each level in each department was selected to participate in the study.

The study used a structured questionnaire as instrument for data collection. The research instrument was validated by two experts – one from the Faculty of Computing and the other from the Faculty of Engineering in the Federal Polytechnic Ede. Their inputs were used to ensure the content and face validity of the instrument. Cronbach's alpha was used to calculate the reliability of the instrument, which was done after a pilot study that involved thirty (30) engineering undergraduates in Ekiti State University, Nigeria. The overall result of the reliability test indicated an internal consistency of as 0.871 which attested to the reliability of the questionnaire.

A total of two hundred and nineteen (219) copies of questionnaire were administered, and one hundred and ninety-six (196) copies (amounting to 89.5% return rate) were retrieved and found valid for analysis. The data were

analysed using descriptive statistics, including frequency count and simple percentage.

Ethical Considerations

Ethical approval for the research was obtained from the Federal Polytechnic Ede Ethical Review Committee. The Committee was instituted to ensure that researchers adhere to ethical requirements. Therefore, the principles that guide data collection, analysis, interpretation, and reporting were strictly adhered to, in order to ensure standard and best practice. Participation in the study was absolutely voluntary. No respondent was coerced to participate in the study. Their consent to participate was solicited in the cover page of the questionnaire. They were adequately briefed of what information was required from them and

were assured that data provided was only for the purpose of this study. Participants' anonymity and confidentiality were ensured by not requesting for personal details that could serve as a means of identification such as names, phone numbers, or house address in the questionnaire. This is to manage the potentially sensitive nature of the data that may implicate participants' academic integrity. The researchers avoided data manipulation and any form of dishonest conduct by using data as elicited from the research instrument.

Results and Discussion

Research Question 1: What is the level of awareness of AI research tools among final year undergraduates?

Table 1: Level of awareness of AI research tools

S/N	Items	S A	A	D	S D	Total
1	ChatGPT and other AI chatbots (e.g, Bard, Claud)	86(43.9%)	78(39.8%)	20(10.2%)	12(6.1%)	196(100%)
2	Grammarly for academic writing and grammar checking	90(45.9%)	72(36.7%)	20(10.2%)	14(7.2%)	196(100%)
3	Turnitin or AI-powered plagiarism checkers	100(51.0%)	66(33.7%)	12(6.1%)	18(9.2%)	196(100%)
4	QuillBot or AI paraphrasing tools	88(44.9%)	72(36.7%)	20(10.2%)	16(8.2%)	196(100%)
5	AI powered citations and reference generators (such as Zotero and Mendeley)	86(43.9%)	80(40.8%)	12(6.1%)	18(9.2%)	196(100%)
6	E-learning platforms with AI support (such as Coursera, Udemy, Khan Academy)	96(49.0%)	88(44.9%)	8(4.1%)	4(2.0%)	196(100%)
7	AI powered research assistants (such as Elicit, Scite)	104(53.1%)	82(41.8%)	6(3.1%)	4(2.0%)	196(100%)
8	Speech-to-text AI tools (such as Otter.ai, Google Voice Typing)	100(51.0%)	78(39.8%)	8(4.1%)	10(5.1%)	196(100%)
9	AI assisted Data analysis tools (such as IBM Watson, RapidMiner)	100(51.0%)	76(38.8%)	4(2.0%)	16(8.2%)	196(100%)

10	AI-enhanced presentation tools (such as Canva AI, PowerPoint AI)	80(40.8%)	88(44.9%)	12(6.1%)	16(8.2%)	196(100%)
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Source: Fieldwork, 2025

Table 2: Level of utilization of AI in research

S/N	Items	Always	Often	Rarely	Never	Total
i.	I use AI-powered learning tools for academic research	86(43.9%)	80(40.8%)	12(6.1%)	18(9.2%)	196(100%)
ii.	I use AI-powered learning tools to summarize academic articles.	81(41.3%)	83(42.3%)	18(9.2%)	14(7.2%)	196(100%)
iii.	I use AI-powered learning tools for grammar and plagiarism.	94(48.0%)	72(36.7%)	16(8.2%)	14(7.2%)	196(100%)
iv.	I use AI-powered citation generators to format my references.	88(44.9%)	72(36.7%)	18(9.2%)	18(9.2%)	196(100%)
v.	I use AI-powered learning tools for grouping discussions and collaboration.	86(43.9%)	80(40.8%)	12(6.1%)	18(9.2%)	196(100%)
vi.	I use AI-powered tools for academic writing assistance.	96(49.0%)	88(44.9%)	8(4.1%)	4(2.0%)	196(100%)
vii.	I use AI-powered learning tools to generate presentation slide.	104(52.1%)	82(41.8%)	6(3.1%)	4(2.0%)	196(100%)
viii.	I use AI-powered learning tools to analyze data for assignment.	100(51.0%)	78(39.8%)	8(4.1%)	10(5.1%)	196(100%)
ix.	I use AI-powered learning tools to translate academic materials.	70(35.7%)	86(43.9%)	8(4.1%)	32(16.3%)	196(100%)
x.	I use AI-powered chatbots to clarify academic concepts.	84(42.9%)	92(46.9%)	4(2.0%)	16(8.2%)	196(100%)

Source: Fieldwork, 2025

Table 1 presents the analysis of data on the level of awareness of AI research tools. The result revealed a very high overall awareness of AI research tools. The results indicate that majority of the students, ranging from over 82% to nearly 95%, are aware of the AI tools listed on the table above. The highest level of awareness was recorded for AI-powered research assistants (94.9%) and AI-supported E-learning platforms (93.9%), followed closely by awareness of tools for speech-to-text conversion (90.8%), AI-assisted data analysis (89.8%), and AI paraphrasing tools (88.8%). High awareness

was also shown for AI-powered plagiarism checkers (87.8%), AI-enhanced presentation tools (85.3%), AI chatbots like ChatGPT (83.7%), citation generators (84.7%), and academic writing aids like Grammarly (82.6%). In every category, the proportion of students who were unaware of these tools was relatively small, constituting between 5.1% and 17.4% of respondents. This obvious high level of awareness may be attributed to increasing exposure to technology in higher education, the integration of ICT into university curricula, and the growing influence of online learning platforms. The growing penetration of smart phones, internet access, and open-access

platforms may also account for the high level of awareness observed in this study. The outcome of this study aligns with previous studies, which found that university students in Nigeria and beyond are increasingly aware of digital and AI-based research tools due to the rapid digitalization of educational environments (Adebayo, 2024; Olatunji, 2021).

Research Question 2: To what extent do you use AI tools in research?

Table 2 presents the analysis of data on the level of utilization of AI in research. The result revealed a high level of adoption across various academic tasks. The data demonstrate that a significant majority of students frequently employ these tools in their studies. The most prevalent uses include generating presentation slides (94.9%), obtaining academic writing assistance and checking grammar and plagiarism (both 93.9%), and analyzing data for assignments (90.8%). Additionally, high percentages of students use AI-powered chatbots to clarify academic concepts (89.8%), employ general AI-powered learning tools for research (84.7%) and for summarizing articles (83.6%). They also utilize these tools for group discussions and collaboration (84.7%). The use of AI-powered citation generators is also widespread, though slightly less so, at 81.6%. In all categories, only a small minority of respondents, ranging from 5.1% to 18.4%, reported that they rarely or do not use AI tools. The overall conclusion drawn from the results is that the level of AI utilization in research among these students is notably high.

The finding of this study demonstrates that beyond awareness, students are actively engaging with AI technologies to support various aspects of their research processes. Such tools are employed for literature searches, citation and reference management, data analysis, academic writing assistance, plagiarism checking, and grammar correction. This outcome is consistent with the findings of Adebayo (2024), who reported that Nigerian

university students increasingly employ AI-powered platforms such as plagiarism detectors and grammar checkers in their research writing. Similarly, Olatunji (2021) found that students in South-Western Nigerian universities rely heavily on digital tools and AI-based applications to facilitate project completion and improve academic output.

Research Question 3: What are the potential benefits of AI in your research?

Table 3 presents the analysis of data on the potential benefits of AI in research. The survey indicates a strong consensus among the students regarding positive academic impact of AI-powered tools. A significant majority of respondents - over 80% in most categories - agreed that these tools enhance their academic performance, accelerate assignment completion, improve comprehension of difficult topics, and foster research and data analysis skills. Notably, an overwhelming 94.9% affirmed that AI chatbots help clarify academic concepts, and 84.7% acknowledged that AI reduces academic stress and workload. However, alongside these perceived benefits, a substantial proportion (84.7%) also recognized that ethical concerns surrounding AI use affect its application in research. Generally, the data analysis revealed that AI holds significant potential to support and improve academic activities for these students. The finding of this study aligns with Adebayo (2024), who reported that Nigerian students increasingly rely on AI-driven digital tools to overcome time constraints and improve the structure of their project work.

Research Question 4: What challenges do you face in using AI for research?

Table 4 presents the analysis of data on the challenges faced by engineering undergraduates in using AI for research in Osun State University. Findings reveal significant, widespread challenges in using AI for research. The most prominent barrier, cited by 94.9% of

respondents, is lack of effective training on how to use AI tools. Closely related are profound ethical and reliability concerns: an equal 94.9% fear academic dishonesty and plagiarism, 89.8% worry about AI's accuracy and reliability, and 86.8% are concerned about the ethical misuse of AI-generated content. Practical and infrastructural barriers are also critical. Limited access to premium tools due to cost (83.7%), poor internet connectivity (82.8%), and the high cost of internet subscriptions (90.8%) severely hinder usage. In summary, students face an interconnected triad of obstacles: a severe training deficit, deep-seated ethical and

reliability anxieties, and significant, financial and infrastructural constraints that limit effective AI adoption for academic work. This finding agrees with Adeyemi (2023), who highlighted infrastructural and connectivity problems as the primary limitations affecting students' adoption of digital research tools in higher education. Another critical challenge is poor internet connectivity and high data costs. Access to AI-powered platforms often requires stable broadband and considerable data consumption, which remains a major barrier for students in Nigerian universities.

Table 3: Impact of AI in Research

S/N	Items	SA	A	D	SD	Total
1	AI-powered learning tools improve my academic performance.	66(33.7%)	94(48.0%)	20(10.2%)	16(8.1%)	196(100%)
2	AI tools help me complete assignments faster.	100(51.0%)	72(36.7%)	8(4.2%)	16(8.1%)	196(100%)
3	AI-powered tools enhance my understanding of difficult topics.	106(53.1%)	66(33.7%)	6(3.1%)	18(9.2%)	196(100%)
4	AI tools improve my research and writing skills.	88(44.9%)	72(36.7%)	20(10.2%)	16(8.2%)	196(100%)
5	AI-powered tools reduce academic stress and workload.	86(43.9%)	80(40.8%)	12(6.1%)	18(9.2%)	196(100%)
6	AI-powered citation tools help me organize my references.	96(49.0%)	88(44.9%)	8(4.1%)	4(2.0%)	196(100%)
7	AI-powered chatbots help clarify academic concepts.	104(52.1%)	82(41.8%)	6(3.1%)	4(2.0%)	196(100%)
8	AI tools improve my ability to analyze and interpret data.	94(48.0%)	75(38.2%)	11(5.6%)	16(8.2%)	196(100%)
9	AI-powered grammar tools enhance my writing quality.	90(46.0%)	80(40.8%)	10(5.0%)	16(8.2%)	196(100%)
10	AI-powered learning tools foster independent learning.	78(39.8%)	88(44.9%)	12(6.1%)	18(8.2%)	196(100%)

Source: Fieldwork, 2025

Table 4: Challenges of AI in Research

S/N	Items	S A	A	D	S D
1	Limited access to premium AI tools due to cost.	65(43.9%)	98(39.8%)	21(10.2%)	12(6.1%)

2	Lack of training on how to use AI tools effectively.	114(58.2%)	72(36.7%)	4(2.0%)	6(3.1%)
3	Concern about plagiarism/ethical misuse of AI generated content.	106(53.1%)	66(33.7%)	6(3.1%)	18(9.2%)
4	Poor internet connectivity or inadequate digital infrastructure.	88(44.9%)	72(36.7%)	4(2.0%)	8(4.1%)
5	Bias or inaccuracy in AI-generated results.	86(43.9%)	80(40.8%)	12(6.1%)	18(9.2%)
6	Resistance from lecturers who discourage AI-powered tools.	96(49.0%)	88(44.9%)	8(4.1%)	4(2.0%)
7	Fear of academic dishonesty or plagiarism.	104(53.1%)	82(41.8%)	6(3.1%)	4(2.0%)
8	High cost of internet subscription.	100(51.0%)	78(39.8%)	8(4.1%)	10(5.1%)
9	AI-generated content may not always be accurate or reliable.	100(51.0%)	76(38.8%)	4(2.0%)	16(8.2%)
10	Ethical concerns about AI use in academics.	84(42.9%)	92(46.9%)	4(2.0%)	16(8.2%)

Source: Fieldwork, 2025

Conclusion

Based on the findings of this study, it is concluded that engineering undergraduates at Osun State University are highly aware of and are actively using AI tools to enhance their academic research. The prospects of AI in this context are substantial, as evidenced by its widespread adoption and the perceived benefits related to efficiency, comprehension, and skills development. AI has clearly transitioned from a novelty to a practical and valued component of the students' research tool kit.

However, this positive trajectory is affected by certain challenges. The lack of structured training and clear ethical guidelines creates an environment of uncertainty and potential misuse. More so, infrastructural deficits, particularly unreliable internet connectivity, as well as the high cost of premium tools, create a digital divide that limits equitable access. Therefore, the full potential of AI to revolutionize undergraduate engineering research at Osun State University may remain unrealized without deliberate institutional intervention to address these challenges.

Recommendations

To harness the benefits of AI while mitigating its challenges, the following recommendations are proposed:

1. The Osun State university should negotiate campus-wide licenses or provide subsidies for premium AI research tools such as advanced plagiarism checkers, and data analysis software to ensure equitable access for all students.
2. The Osun State University management should improve the institution's internet connectivity and digital infrastructure, including providing stable Wi-Fi across campuses and in hostels, to support the use of data-intensive AI applications.
3. The Osun State University Senate, in collaboration with the ICT and Library departments, should develop and disseminate clear, official guidelines on the ethical use of AI in academic work to address concerns about plagiarism and academic integrity.
4. The university should organize mandatory workshops and training programs for both students and staff, to build digital literacy

and demonstrate how to use AI tools effectively, efficiently, and ethically.

5. Students should actively seek out and utilize the many free and robust AI tools available, while also attending any training offered by the university to improve their proficiency.

Conflicts of Interest

We acknowledge that there is no conflict of interest.

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AI Use Declaration

We acknowledge that Deepseek AI was used for brainstorming.

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