

Full Length Research

CHATGPT Development & Application to Information Processing & Management in Nigerian Universities

Dr. Olubiyo Peter Olubunmi

University Library, Adeyemi Federal University of Education, Ondo, Ondo State, Nigeria.
E-mail: olubiyopeter@gmail.com

Accepted 10 June 2025

The public release of ChatGPT by Open AI in November 2022 triggered one of the fastest and most significant phenomena of technology adoption in the history of higher education worldwide. ChatGPT is a qualitative discontinuity in the accessibility of artificial intelligence (AI), with advanced Natural Language Processing (NLP) capabilities directly in the hands of every student, lecturer, and researcher with internet access in only two months, surpassing the adoption curves of Facebook (4.5 years), Twitter (5 years), and Instagram (2.5 years) (Biswas, 2023; Firat, 2024). As of the end of 2024, ChatGPT was estimated to have about 100 million weekly users and the ChatGPT site was visited more than 1.6 billion times in December 2023 alone (BrowserCat, 2025). The survey on higher education students worldwide shows that 86 percent of students are currently using AI tools in their education, and ChatGPT is the most used tool among them (Digital Education Council, 2024). The largest of its kind, a comprehensive global survey of 23,218 students in 109 countries and territories found that students mostly use ChatGPT to brainstorm, summarise texts and locate research articles (PMC, 2025). ScienceDirect (2025), who analysed over 20,000 student responses, discovered that over 70 percent of students worldwide use ChatGPT with developing countries (71 percent) closer to those in developed countries (74 percent). ChatGPT has infiltrated the university life in Nigeria at an incredible rate even though the nation has a problem with digital infrastructure. The University of Ibadan, Nnamdi Azikiwe University (UNIZIK), Obafemi Awolowo University (OAU), Federal University Otuke and Federal College Of Education Bida all record high and increasing awareness, positive attitudes and varied utilisation patterns of both students and academics. The fact that the digital economy sector has a contribution to real GDP in Nigeria of 19.78% in Q2 2024 (NBS, 2024) places the country as a market where AI literacy is not a mere academic but an economic necessity. The paper presents a more detailed, theoretically-based and evidence-based analysis of ChatGPT, its architecture, history, information processing and management applications, implementation in Nigerian universities, governance issues, and library-specific implications, which is completed by the final set of recommendations to the NUC, university administrators, library professionals, and individual academics. The article is based on peer-reviewed articles published in 2019-2025, institutional information, international surveys, and empirical studies unique to Nigeria to present a rigorous examination of the potential to transform and the risks of ChatGPT in one of the most vibrant higher education systems in Africa.

Keywords: ChatGPT, Generative AI, Large Language Models, Information Processing, Nigerian Universities, Higher Education, OpenAI, Academic Integrity, Research Development, NLP, Library Services, AI Governance, Information Management

Cite This Article As: Olubiyo, P.O. (2025). CHATGPT Development & Application to Information Processing & Management in Nigerian Universities. *Inter. J. Acad. Res. Educ. Rev.* 13(2): 54-68

THEORETICAL FRAMEWORK

The theoretical frameworks mentioned in this paper are three complementary theories that, when put together, place the implementation of ChatGPT at Nigerian universities within the context of a set of proven theories in social science and information science. Technology Acceptance Model (TAM), which was originally proposed by Davis (1989) and later elaborated by the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) by Venkatesh et al. (2012) serves as the key conceptual framework to explain the adoption and use of ChatGPT among Nigerian academics. UTAUT2 singles out performance expectancy (improvement of academic performance through the use of ChatGPT), ease of use, social influence, facilitating conditions, hedonic motivation (enjoyment), habit, and price value as the determinants of the intention to use technology and behaviour. A UTAUT2 study of ChatGPT adoption (Frontiers in Education 2025) revealed that attitude and behavioural intention were the most significant predictors of actual use of ChatGPT with performance expectancy and social influence also found to be significant predictors of actual use of ChatGPT, which is also consistent with the Nigerian academic environment where perceptions of utility to research support and pattern of peer adoption are strong predictors of actual use of Chat

The second theoretical framework is the Diffusion of Innovations Theory (DoI) developed by Everett Rogers (2003) and widely used in the context of ICT adoption in developing countries. Rogers presents five characteristics of innovations that define the rate and scope of diffusion relative advantage, compatibility, complexity, trialability, and observability. ChatGPT is rated high in all five, it is free (relative advantage), it is compatible with the existing academic workflows (compatibility), it can be intuitively used (low complexity), it can be tried at zero cost (trialability), and its outputs are shareable and demonstrable (observability). This profile of attributes clarifies the observation of the technology being rapidly diffused to higher education in Nigeria despite the infrastructure limitations in the country. The categories of adopters identified by Rogers, innovators, early adopters, early majority, late majority, laggards, fit the Nigerian academic community, with early-career, digitally native students and younger faculty members being the leaders in adoption.

The third framework is the Information Processing and Cognitive Load Theory (Sweller, 1988; Miller, 1956) applied to the academic setting with the aid of AI. This theory assumes that there is a constrained capacity of working memory in learners and that the effective design of learning minimises extraneous cognitive load and maximises the germane load as much as possible. The capability of ChatGPT to quickly summarise literature, clarify a complex concept, write first drafts, and complete more straightforward writing assignments lessens the amount of extraneous cognitive load on the researchers and students, potentially, releasing cognitive resources to engage with academic material in more analytical, critical, and creative ways. This theoretical contextualization can be used to determine the popularity of ChatGPT (cognitive offloading as a possibility) as well as one of the main threats to academic integrity (the urge to apply cognitive offloading as an alternative to, not an addition to, original intellectual activity).

Table 1: Theoretical Frameworks Applied to ChatGPT Adoption in Nigerian Universities

Theory	Core Proposition	Application to ChatGPT in Nigerian Universities
TAM / UTAUT2 (Davis, 1989; Venkatesh et al., 2012)	Performance expectancy, effort expectancy, social influence, and habit drive technology adoption	Nigerian academics adopt ChatGPT when perceived utility (research, writing) is high; institutional support and peer networks accelerate adoption
Diffusion of Innovations (Rogers, 2003)	Innovations diffuse based on relative advantage, compatibility, simplicity, trialability, observability	ChatGPT's zero-cost, intuitive, immediately useful profile explains its rapid penetration across Nigeria's 260+ universities despite infrastructure challenges
Cognitive Load Theory (Sweller, 1988)	Effective learning reduces extraneous cognitive load; freed capacity goes to deeper processing	ChatGPT reduces routine writing/synthesis load, potentially enabling deeper research engagement, or enabling intellectual bypassing if misused

Table 1: Author's Synthesis (2024)

CONCEPT OF CHATGPT, DEFINITION, ARCHITECTURE, AND MEANING

Definition and Core Architecture

ChatGPT (Chat Generative Pre-trained Transformer) is a large language model (LLM) created by OpenAI that uses advanced Natural Language Processing (NLP) algorithms to comprehend, interpret, and write text that is linguistically fluent, coherent, and contextually fitting over an impressive range of subjects and areas (Adigüzel et al., 2023; Tili et al., 2023). The model is based on the Transformer architecture, a neural network architecture introduced by Vaswani et al. (2017) in their pioneering paper 'Attention Is All You Need' that employs self-attention mechanisms, processing and generating language by attending to relationships between all words in a sequence at the same time, instead of reading text one word at a time as previous recurrent neural network (RNN) based models did. This architecture significantly enhanced the language model performance and scalability, which allowed the training of the larger models within the GPT series.

UNESCO defines generative AI in education (2023) as an AI system that can respond to questions or statements with convincing human-like responses. ChatGPT is defined as such an AI system. OpenAI (2023) expounds further that ChatGPT is capable of responding to follow-up questions, owning its errors, questioning false premises, and declining inappropriate requests. García-Peñalvo (2023) continues by mentioning that ChatGPT is versatile, being able to comprehend languages, summarise texts, translate information, write code, and answer particular questions in practically any field. ChatGPT is part of the larger group of Generative AI, systems that generate new content (text, images, audio, code, video) and not classify, retrieve or analyse existing content. It produces answers by auto regressively predicting text: presented a sequence of input tokens (words), it predicts the most contextually suitable next token in a probabilistic way, and then the next, and so on, producing coherent answers word-by-word. Training data is in billions of tokens of internet, books, academic papers, and code repositories.

ChatGPT has been trained on about 45 terabytes of compressed plain text, which is only about a quarter of this amount of the total body of the United States Library of Congress, as Yang (2024) points out. This huge training corpus provides ChatGPT with depth of knowledge in any field, science, history, literature, law, medicine, engineering and practically every field of study that even the most knowledgeable person could not replicate and creates a tool with uniquely strong power in cross-disciplinary information synthesis.

Service Tiers, Capabilities, and Limitations

ChatGPT is made available as a freemium service, with a free tier (previously GPT-3.5, now including limited GPT-4o access) giving all users with internet access access to the most basic conversational AI functionality, and a paid-tier (ChatGPT Plus/Pro, at \$20/month) giving users access to the most capable model versions, image generation, advanced data analysis, code execution, and large The free version of GPT-4 can provide a real-time and considerable benefit to information processing and information management tasks (literature summarisation, writing assistance, research question formulation, and bibliographic support) to Nigerian scholars with limited research funds, but with the drawbacks of knowledge cutoff (as of April 2024, GPT-4o) and the creation of plausible-sounding but factually inaccurate content (hall Some of the main functional features of ChatGPT that can be applied to academia are: answering natural language queries in a wide range of disciplines; text summarisation and text synthesis; drafting text (essays, reports, proposals, abstracts); language translation; writing and debugging code; explaining concepts at different levels of complexity; and conversational tutoring. Limitations consist of: knowledge cutoff (no real-time information); hallucination (plausible but incorrect claims); training data biases (underrepresentation of African, Nigerian, and Global South content); failure to access subscription databases or paywalled content; low specialisation with highly specialised or novel technical domains; and lack of genuine reasoning or consciousness (making it an inappropriate uncritical replacement of human expert judgment).

Table 2: ChatGPT Capabilities vs. Limitations in Academic Information Processing

Dimension	Strengths / Capabilities	Limitations / Risks
Information Retrieval	Rapid synthesis of known information; cross-disciplinary breadth; trained on 45 TB of text (Yang, 2024)	Cannot access real-time or paywalled content; knowledge cut-off April 2024; may hallucinate sources (Li & Coates, 2024)
Writing Assistance	Improves clarity, grammar, structure; supports non-native English writers; generates drafts rapidly	Risk of plagiarism; homogenisation of academic voice; over-reliance reduces critical skill development (Cotton et al., 2023)
Literature Synthesis	74.4% of experts rated ChatGPT-generated abstracts as good quality in one study (Stepanov et al., 2023)	Invented citations are common; cannot access post-cutoff literature; narrative bias toward training data distribution
Research Methodology	Explains research designs, statistical tests, qualitative approaches in accessible language	Generic guidance; may not suit Nigeria-specific contexts; cannot verify empirical assumptions
Library & Reference	24/7 availability; general guidance on resource navigation; translates between disciplines (Yang, 2024)	Responses may be inaccurate; not comparable to expert librarian for complex queries (Li & Coates, 2024)
Code and Data Analysis	Explains statistical code (SPSS, R, Python); debugs programmes; generates data visualisation code	May generate incorrect code; not verified for domain-specific statistical procedures

Table 1: Author's Synthesis (2024); adapted from Yang (2024); Li & Coates (2024); Cotton et al. (2023); Suleman et al. (2024)

HISTORY OF CHATGPT DEVELOPMENT, FROM GPT-1 TO GPT-4o

OpenAI: Founding Vision and Structural Evolution

In December 2015, a highly prestigious group of technologists, entrepreneurs, and scientists including Sam Altman (who became CEO), Greg Brockman, Ilya Sutskever, Elon Musk (who later left the board in 2018), Wojciech Zaremba and John Schulman established OpenAI as a non-profit artificial intelligence research organisation with an initial capital of \$1 billion raised by technology. The founding charter of OpenAI stated a mission of making artificial general intelligence available to all of humanity, a public-interest framing explicitly that placed the organisation in contrast to the profit-maximising AI development initiatives of large technology companies.

With the vast computational prices of training larger language models in 2019 (GPT-3 alone would use an estimated 4-12 million compute costs), OpenAI adopted a capped-profit corporate structure, forming OpenAI LP, a limited partnership where investors could get returns of up to 100x their investment, with any surplus going to the non-profit mission. This framework enabled OpenAI to receive investment by Microsoft, which, in 2019, invested \$1 billion in the startup and, in 2023, promised to invest an additional \$13 billion, without abandoning its stated dedication to responsible AI development. The partnership with Microsoft essentially defined the course of ChatGPT, with OpenAI models being used in Microsoft Azure cloud service, Bing search engine, and Office productivity suite, significantly broadening the commercial potential of GPT-based technology.

The GPT Model Series: An Evolutionary Timeline

ChatGPT should be viewed as the result of a progressive sequence of increasingly more powerful language models, which are both milestones of increasing NLP capacity and the source of new ideas about the potential and danger of large language model technology.

Table 2: ChatGPT and OpenAI's GPT Development Timeline

Year	Model	Scale	Key Development & Academic Significance
2018	GPT-1	117M parameters	First GPT; demonstrated that unsupervised pre-training + supervised fine-tuning could achieve strong NLP performance across diverse tasks
2019	GPT-2	1.5B parameters	Initially withheld due to concerns about misuse for disinformation; partial release in stages demonstrated responsible disclosure challenges for AI developers
2020	GPT-3	175B parameters	Landmark model; few-shot learning enabled high performance across tasks without fine-tuning; API launched; demonstrated transformative NLP capabilities that sparked AI in education research
Nov 2022	ChatGPT (GPT-3.5)	Est. 175B+ parameters	Public ChatGPT launch via conversational interface; 100M users in 2 months, fastest consumer app adoption in history; disrupted academic assessment worldwide
Mar 2023	GPT-4	Est. trillions (MoE)	Multimodal (text + image); dramatically improved reasoning, factual accuracy, and nuance; passed bar exam in top 10th percentile; raised bar for academic use and misuse
May 2024	GPT-4o	Est. trillions	Omni-modal: text, audio, image in real time; faster, more efficient; made GPT-4 class capabilities free for all users, dramatically lowering barrier for developing-country academics
2025	o1 / o3 / GPT-4.5	Undisclosed	Chain-of-thought reasoning models; advanced agentic capabilities (web browsing, file analysis, code execution); expanded research utility but heightened misuse risk

Table 2: Compiled from OpenAI (2023); ScienceDirect (2024); Biswas (2023); BrowserCat (2025)

The Record-Breaking Adoption Trajectory

The free release of ChatGPT on November 30, 2022, marked a historic turning point in the history of AI: it is the first multi-purpose, sophisticated, and freely accessible language AI, no programming skills, no API keys and access, no subscription. The response of adoption was unparalleled. ChatGPT had a million users within a week of its launch. It reached 100 million monthly active users within two months (January 2023) which Facebook took 4.5 years, Twitter 5 years, and Instagram 2.5 years to accomplish (Biswas, 2023; Firat, 2023). As of late 2024, ChatGPT had around 100 million weekly users and had 1.6 billion visits to its websites in December 2023 alone. The ChatGPT mobile app downloads have increased to about 14 million in December 2023, a 260 percent growth since its May 2023 release (BrowserCat, 2025).

One of the areas which were most significantly impacted by this wave of adoption was the educational sector. In days after the release of ChatGPT, academic journals, newspapers, and education blogs were discussing how it affects assessment, academic honesty, and the future of academic writing. New York City to Singapore universities were actively discussing the issue of banning, limiting or accepting the technology within weeks. Within two weeks of the official release of ChatGPT, Professor Darren Hudson Hick of Furman University documented what might have been the first-ever recorded case of ChatGPT-assisted plagiarism (Cotton et al., 2023), presaging the academic integrity crisis that would soon become the most debated educational impact of the technology.

APPLICATION OF CHATGPT TO INFORMATION PROCESSING & MANAGEMENT

ChatGPT in the Information Lifecycle

The professional area where librarianship, information science and knowledge management intersect Information processing and management involves the entire lifecycle of information: discovery, acquisition, organisation, storage, retrieval, analysis, synthesis, dissemination and preservation. The features of ChatGPT overlap with this lifecycle in

several ways, presenting both prospective transformations of information professionals as well as posing significant challenges to the continuity of information quality, accuracy and provenance. The analysis below charts the uses of ChatGPT through six major phases of academic information lifecycle using international and country-specific evidence.

Stage 1, Information Discovery and Literature Review

The literature review and synthesis feature is the most documented and most commonly used type of ChatGPT usage in academic information processing. ChatGPT can produce detailed summaries of research areas, major scholarly discussions, summaries of theoretical frameworks, and the comparison of methodologies and apparent gaps in research, just in a few seconds, when asked appropriately. In Nigerian university research settings, Suleman et al. (2024) discovered that ChatGPT can alleviate time pressures associated with workload related to literature synthesis and initial drafting. In a systematic literature review that examined 57 research articles on ChatGPT in higher education published between 2023 and 2024, the ScienceDirect (2024) confirmed that literature review support was the most prevalent reported academic use of ChatGPT worldwide.

An example of the huge potential of the technology in summarisation tasks is a study by Stepanov et al. (2023), referenced in ChatGPT Potential for Improving Library Services, which concludes that the technology produced abstracts of scientific articles of good quality (74.4% of people). Nonetheless, this possibility is also characterized by a serious drawback: ChatGPT is prone to producing credible-sounding yet nonexistent references (so-called hallucinated citations), which in the case of literature reviews are one of the essential conditions of scholarly credibility. The application of ChatGPT by Nigerian scholars to review literature will require them to exercise strict scrutiny of all the sources cited in their works against real databases (Google Scholar, Scopus, Web of Science, NUC Virtual Library) before putting them into any piece of scholarly work.

Stage 2, Research Question and Methodology Development

ChatGPT has a significant application in the information lifecycle research design phase. To Nigerian scholars, who often work in teaching-intensive settings with little time to consider building their methods, ChatGPT can quickly generate options in research questions, describe the various features that are characteristic of different research designs (quantitative survey, qualitative case study, mixed methods, systematic review), propose suitable data collection tools, reveal common methodological traps, and describe statistical tests in simple terms. The author reports that AI systems such as ChatGPT have streamlined the research process and learning, making the education process less complicated among students and academic personnel in the context of Nigerian universities (Ogunode, 2024).

The implications to information management are profound: ChatGPT will be able to support the planning of research data management, proposals of suitable data formats, storage strategies, and metadata schemas in various research projects. In the case of library and information science professionals, this goes as far as collection development and information architecture choices, where asking ChatGPT to compare alternative methods of cataloguing or assess the usefulness of particular classification systems to particular types of collections can provide useful starting points to be discussed by professionals.

Stage 3, Academic Writing, Drafting, and Language Enhancement

Assistance with academic writing is also one of the most effective ways that ChatGPT can be used in the context of the Nigerian higher education sector, where language barriers, especially to the non-native English speakers in the North, and to the first-generation university entrants may limit the capacity of scholars to convey their research to the level of international publication. The analysis of 23,218 students across 109 countries (PMC, 2025) who were involved in a global survey and reported that they were using ChatGPT revealed that the most frequent cases were creating first drafts (24%), brainstorming ideas, and summarising content, and students had found ChatGPT to be particularly helpful in simplifying complex information. Garccia-Peñalvo (2023) pinpoints the text interpretation, summarisation, and language assistance features of ChatGPT particularly as important academic advantages.

In the case of Nigerian institutions with English as a medium of instruction but commonly the second (or third) language of students and faculty, the grammatical, structural, and clarity-enhancing features of ChatGPT can have a beneficial effect on the quality of academic writing, whether it is an undergraduate paper or a doctoral dissertation or journal paper. The systematic review of ScienceDirect (2024) established that authors reported the use of ChatGPT to assist in the preparation of assessments, language training, argumentative writing, and scientific writing in a variety of educational settings.

Stage 4, Information Organisation, Classification, and Library Management

ChatGPT has certain and expanding uses in the management of collections, reference services, cataloguing support, and information literacy training to information professionals and academic librarians in Nigerian universities. In the article published in *Information Discovery and Delivery* (Emerald), Li and Coates (2024) compared the abilities of ChatGPT and LibChat to answer ten typical reference questions in Georgia Southern University Libraries and found that ChatGPT had the potential to effectively give general guidance on finding information resources and services, but not as accurately and personalised as an experienced reference librarian. In the *International Journal of Librarianship*, Yang (2024) discovered that ChatGPT was able to respond to reference questions in a variety of subject fields, and he referred to AI-powered chatbots as potentially allowing 24/7 coverage of library reference services outside the usual working hours of librarians.

In the systematic review of the potential of ChatGPT in library services, IJLSIT (2024) found diverse applications of ChatGPT in specific library services: subject bibliography generation; classification assistance (using ChatGPT to apply Library of Congress Classification or Dewey Decimal numbers to objects); language translation in multilingual collections; document summarisation in current awareness services; and research guide (LibGuide) content generation. Critically, the review has highlighted that the libraries in developing nations, such as Nigeria, are mainly involved in providing traditional services that cannot be accessed beyond the library buildings, and that open-access ChatGPT services can be used to offer services to any patient who does not have the chance to visit the library.

The Nigerian study by Oladokun et al. (2024) reported that students thought that ChatGPT was an effective auxiliary resource, liked its ability to save time, expand the scope of knowledge, and also found limitations of information reliability and the inability to interpret the emotional context. Adetayo (2023), who specifically discusses the use of AI chatbots in academic libraries and the emergence of ChatGPT, places the technology as a disruptive reference tool that entails Nigerian academic librarians transforming into information facilitators, rather than information gatekeepers, using AI tools in effective, ethical, and critical ways as an extension of information literacy services.

Figure 1: ChatGPT in the Academic Information Lifecycle , A Process Schematic

Stage	Information Lifecycle Phase	ChatGPT Application	Quality Assurance Requirement
1	Discovery & Literature Review	Field overviews; key themes; research gap identification; abstract summarisation	Verify all citations against Scopus/Google Scholar; cross-check claims against primary sources
2	Research Design	Research question alternatives; methodology comparison; instrument design; statistical test explanation	Expert review of methodology choices; discipline-specific guideline compliance
3	Writing & Communication	Draft generation; grammar/clarity editing; language assistance; abstract writing	Disclose AI assistance; ensure original intellectual contribution; integrity verification
4	Organisation & Classification	Cataloguing assistance; classification suggestions; bibliography organisation; reference formatting	Professional librarian verification; authority control checking; accuracy audit
5	Reference & User Services	24/7 reference chatbot; resource location guidance; subject-specific research support	Human librarian escalation for complex queries; accuracy verification before patron use
6	Dissemination & Publication	Grant writing support; abstract preparation; journal selection guidance; research impact framing	Author responsibility for all content; compliance with journal AI disclosure policies

Figure 1: Author's Process Schematic (2024); adapted from Suleman et al. (2024); Li & Coates (2024); Yang (2024); Adetayo (2023)

CHATGPT DEVELOPMENT IN NIGERIAN UNIVERSITIES

The Nigerian Higher Education Context

The university sector in Nigeria, with over 260 accredited institutions (47 federal, 62 state, 151+ private) as of 2024, a student population of more than 2.2 million, and approximately 45,000 full-time academics, is typified by a compounded interaction of a large scale, resource constraint, young demographic, and an increasing digital aspiration that presents Digital competency has been explicitly incorporated into the NUC Core Curriculum and Minimum Academic Standards

(CCMAS), which was updated in 2022, and Nigeria has a national policy and strategy to become the top digital economy in Africa, the National Digital Economy Policy and Strategy (NDEPS) 2020-2030. In this context, ChatGPT came at a time of increased digital consciousness and desire among the largely young Nigerian student demographic who are the largest proportion of Nigeria's 220+ million, about 70 percent are under 35.

Empirical Evidence of ChatGPT Adoption in Nigerian Universities

In a survey of Nnamdi Azikiwe University (UNIZIK), Awka, Nnaemeka and Ogunbadejo (2024) observed that awareness, knowledge, and understanding of the capabilities of ChatGPT were high among undergraduates, which confirms that the ChatGPT is spreading among academicians at the Nigerian university to carry out academic-related activities and research activities. The research indicated that most of the undergraduates sampled understood the potential of ChatGPT clearly in the survey, which is in line with the high smartphone and social media penetration and activity typical of Nigerian university campuses. On the same topic, Adefuye et al. (2023, as cited in the Nigerian academic literature) reported positive effects of ChatGPT among postgraduate students of the University of Ibadan, the largest research university in Nigeria, stating that students appreciated the tool as a means of literature review acceleration and writing quality enhancement.

Kangiwa and Abubakar (2024) reported the presence of ChatGPT awareness and use among academic faculty at the Federal College of Education, Bida, and confirmed that adoption is not only among students but also among faculty, even in the context of teacher education, where the use of digital tools was historically low. The authors of the study by Ukeh and Anih (2024) at Federal University Otuoke, Bayelsa State, have reported the use of AI-powered tools (such as ChatGPT) in teaching and research by lecturers and noted initial, yet actual, use of the technology despite the lack of infrastructure.

The latest Nigerian ChatGPT study that has the strongest methodology is the one conducted by Obafemi Awolowo University (Discover Education, 2026), which surveyed 855 undergraduate students in the Science, Technology, Environmental Design and Management and Education faculties of that university during the 2023/2024 academic year. In this mixed-methods research, there were substantial positive perceptions of ChatGPT regarding the benefits of affect (greater confidence, motivation) and task utility (specifically, in computer programming courses, debugging support). Nevertheless, it reported a notable and meaningful difference: positive affective perceptions of ChatGPT did not predict better performance in final exam outcomes, and the use of ChatGPT did not have a significant positive relationship with academic performance outcomes. This empirical result, which is among the initial empirical performance tests of the use of ChatGPT in the context of Nigerian higher education, indicates that the tool could be used more of a motivational and process-supportive tool than a learning outcome enhancer and poses significant questions regarding the connection between AI-aided study and actual knowledge acquisition.

The multi-country research by ScienceDirect (2025), which included Morocco, Nigeria, and Tanzania, used a multi-dimensional model to measure the knowledge, adoption, and perception of ChatGPT among African students of the HEIs. It was widely adopted with favorable attitudes towards the use of ChatGPT as an academic support tool, and found comparable results to the global trend of over 70% student adoption, but raised concerns about the accuracy of information, academic dishonesty, and ethical application that were especially relevant in the African context, where AI-use policies are not yet as developed as at North American and European institutions. The data provided by Google Trends, as quoted by Diinsider Life (2024) validates a consistent and increasing Nigerian interest in ChatGPT since its mobile app was released in June 2023.

Table 3: Empirical Studies on ChatGPT Adoption in Nigerian Universities (2023–2026)

Study / Institution	Sample	Key Finding	Implications for Policy/Practice
Nnaemeka & Ogunbadejo (2024), UNIZIK, Awka	Undergraduates	High ChatGPT awareness, knowledge, and proliferation for academic purposes	Confirms need for formal AI literacy education and institutional ChatGPT use policies in Nigerian universities
Adefuye et al. (2023), University of Ibadan	Postgraduate students	Positive attitudes; appreciation for literature review acceleration and writing support	Postgraduate researchers represent high-impact users; institution should develop postgraduate AI use guidelines
Kangiwa & Abubakar (2024), Federal College of Education, Bida	Academic staff	Faculty awareness and utilisation documented; engagement despite infrastructure limits	Academic staff training in effective, ethical ChatGPT use is needed across all institution types

Continuation of Table 3

Ukeh & Anih (2024) , Federal University Otuoke	Lecturers	Early but genuine lecturer engagement with AI tools for teaching and research	Confirms national reach of ChatGPT adoption; not limited to elite urban institutions
Discover Education (2026) , OAU (N=855)	855 undergraduate students	Positive affective perception; NO improvement in final scores from ChatGPT use	Critical finding: AI confidence \neq AI-enhanced performance; deep learning still requires human cognitive engagement
Oladokun et al. (2024) , Nigerian University Library	Undergraduate students	ChatGPT valued for time-saving and knowledge breadth; reliability and emotional intelligence cited as constraints	Library ChatGPT integration should be complemented by information literacy training on AI limitations

*Table 3: Compiled from cited sources***RESEARCH, DEVELOPMENT & ENHANCEMENT IN NIGERIAN UNIVERSITIES****The Structural Research Challenges ChatGPT Addresses**

The Nigerian universities have a cluster of well-documented research productivity issues which cumulatively limit the academic production in relation to the size of the university system. The authors of Suleman et al. (2024) distinguish the following main barriers within the structure: the absence of academic autonomy; the chronic lack of funding that deprives the majority of academics of research assistants; overwork caused by high student-staff ratios (usually more than 1:50); inadequate infrastructure; insufficient research mentoring; insufficient academic writing skills (especially among non-native speakers of English). All of these lead to comparatively low rates of international publication and impact of citation of Nigerian scholars in comparison with the scale of the higher education system in the country.

ChatGPT can solve several of these challenges concurrently using different mechanisms. ChatGPT offers literature review assistance, data interpretation assistance, and writing assistance based on AI to funding-constrained researchers who do not have research assistants, democratising research support tool access that used to be exclusive to well-resourced researchers. To overworked lecturers, ChatGPT will automate the process of routinely processing information, writing course outlines, creating assessment rubrics, summarising meeting notes, writing bibliographies, releasing cognitive capacity to engage in more in-depth research. In the case of early-career scientists developing a track record of publications, the manuscript quality improvement and journal submission features of ChatGPT can have a significant, positive effect on the professional quality and confidence of the first submission. Both Ogunode (2024) and Suleman et al. (2024) report these democratisation impacts in the Nigerian academic environment.

ChatGPT and Nigerian Research Output Enhancement

The output of research in Nigeria, although steadily increasing, Scopus-announced publications increasing to more than 10,000 annually in 2022, is low in comparison with the population of the country, its level of education, and economic goals. ChatGPT is a collection of research improvement services that, when used ethically and strategically, will help enhance the quality and quantity of Nigerian scholarly work. Specifically:

- **Grant Writing Enhancement:** ChatGPT can assist Nigerian scholars to better structure grant applications, make them more clear and logically coherent and propose persuasive ways of framing the argument of research significance, a major obstacle to receiving grants in most cases, and Nigeria has low success rates in competitive international grant competitions.
- **Manuscript Preparation:** ChatGPT can potentially enhance grammar, clarity and structure of arguments in a manuscript which will be submitted by Nigerian researchers to international peer-reviewed journals and therefore, may positively affect the level of rejection due to language quality concerns. The systematic review in ScienceDirect (2024) is a confirmed manuscript writing aid as a legitimized application of ChatGPT in various fields.
- **Interdisciplinary Synthesis:** The most acute development issues facing Nigeria, whether it is health, agriculture or infrastructure problems, need interdisciplinary research designs. The wide range of training data available to ChatGPT allows the system to generalise across disciplinary boundaries, which can benefit Nigerian researchers by revealing cross-disciplinary relationships that would be overlooked by single-disciplinary search algorithms.
- **Data Analysis Support:** ChatGPT can teach statistical concepts, help interpret statistical output, select the right tests, and aid with coding to enable academics with less statistical training to overcome the technical barriers of quantitative research. ChatGPT supports the analysis of statistical data in Nigeria by using statistical software (SPSS, Stata, R, Python).

CHALLENGES TO CHATGPT USE IN NIGERIAN UNIVERSITIES

Academic Integrity and AI-Facilitated Plagiarism

The most commonly mentioned and indeed the most serious problem related to ChatGPT in academic institutions, and especially acute in the context of Nigerian universities, is that it may facilitate mass academic dishonesty. A groundbreaking article titled *Chatting and Cheating: Ensuring Academic Integrity in the Era of ChatGPT* published by Cotton et al. (2023) reported that ChatGPT could create essays and research articles of adequate quality to pass typical academic integrity tests, and that students were testing it within days of its release. The journal *Frontiers in Education* (2025) affirmed that those tools to detect plagiarism have a hard time identifying AI-produced content, leading to an arms race between AI-generation and AI-detection abilities.

The magnitude of the academic integrity challenge is measured by statistical evidence of surveys around the world. *Diinsider Life* (2024) found that 72 percent of college faculty and 58 percent of K-12 educators were concerned about ChatGPT affecting the academic dishonesty of students, and 51 percent of students themselves felt using ChatGPT to do academic work was cheating. According to the *AI Plagiarism Statistics* report (ArtSmart, 2025), 68 percent of teachers currently use AI detection tools to fight academic dishonesty, which has increased by 30 percentage points in one year, and that the student discipline rates of AI-related plagiarism increased by 48 percent in 2022 to 64 percent in 2024. According to *Copyleaks* (2024, cited in *Discover Education*), the number of AI-generated content among students all over the world increased by 76 percent in one year.

The Nigerian-specific research conducted by Buraimo et al. (2024, cited in *ResearchGate*) on the use of ChatGPT in academic writing and plagiarism among Nigerian university students revealed that ChatGPT could avoid the traditional tools of plagiarism detection and generate original texts that would raise the risk of plagiarism and undermine academic validity and credibility of the assessment. The paper observed that the plagiarism propensities of many Nigerian university students were already in place before ChatGPT (Francis et al., 2020; Sambo et al., 2021), and that ChatGPT reduces the effort barrier to academic dishonesty by a staggering amount. The *AI and Ethics Handbook on Higher Education in Nigeria* (Okebukola et al., 2025), which consists of the work by 279 scholars of higher education in Nigeria, directly deals with this issue, which is why NUC is suggested to make AI disclosure mandatory and update all universities in Nigeria with the policies of academic integrity.

The National Open University of Nigeria (NOUN) has introduced AI-based assignment assessment and personal feedback (*AI & Ethics Handbook*, 2025) and has shown that universities in Nigeria can leverage AI as a content creation tool but also as a tool to check integrity. A model based on the incorporation of AI writing aid into a quality assurance model, where the AI will give an instant comment on grammar, style, and referencing style, but will also establish the authenticity of the authorship, as described in the University of Edinburgh model (in *Discover Education* integrity analysis), can serve as a pattern in the Nigerian university library information literacy programmes.

The Hallucination Problem and Information Quality Risks

The tendency of ChatGPT towards hallucination, the creation of plausible-sounding, but factually incorrect, invented, or distorted information is, in itself, a particular and severe problem of academic information management. A study by Alejandro et al. (2023) has highlighted that data generated by ChatGPT should first be confirmed prior to usage. In their assessment of the appropriateness of ChatGPT to academic library reference services, Li and Coates (2024) discovered that although ChatGPT offered effective general advice, its answers were not necessarily appropriate or true. The systematic review by the IJLSIT (2024) affirmed that verification remains to be done, as ChatGPT continues to be vulnerable to the validity and accuracy of the information that it generates.

The citation generation environment is one of the most hazardous academic settings where this limitation is the most threatening with the hallucination risk being especially acute. ChatGPT often produces bibliographic entries that seem genuine (they have believable author names, journal names, volume numbers, and page numbers) but do not exist in reality. To Nigerian researchers, especially those in fields where the access to extensive verification databases is less than ideal, the danger of fitting hallucinated references in the submitted manuscripts is real and serious. This drawback is further exacerbated by the fact that the ChatGPT training data is limited to April 2024 (in the case of GPT-4o), so the ChatGPT is unable to access literature published after this point, posing a currency problem that is especially problematic in rapidly evolving research areas.

Infrastructure, Connectivity, and Equity Challenges

Use of ChatGPT needs a good, high-speed internet that is still an unequally distributed resource in Nigerian universities. The 2024 *Subscriber/Network Performance Report* of the NCC records the broadband penetration of 44.43 percent in the

country, with high urban-rural differences; numerous university campuses in the country are not in a big city, and real-time ChatGPT sessions cannot be done reliably due to the unreliable connection. Power outages, in which most campuses have been having 8-16 hours of power cuts per day, also negatively impact the ongoing ChatGPT use. These institutional limitations imply that the accessibility of ChatGPT is actually unequal within Nigerian universities: students and scholars at the more resource-rich private universities in Lagos and Abuja have a qualitatively different experience of ChatGPT than students and scholars in the less-connected public universities elsewhere. Although the adoption gap between developed and developing countries in terms of ChatGPT adoption (74% vs 71%) is smaller than it could be, ScienceDirect (2025) confirmed that quality-of-access differentials, which cannot be measured by statistics alone, compound it.

Data Privacy, Sovereignty, and Ethical Concerns

ChatGPT poses certain data privacy and sovereignty challenges that are especially pertinent to the Nigerian academic setting. Any data typed into the Chat GPT interface, such as unpublished research results, raw data, survey answers that are confidential, and personal data of students, may be utilized to further train OpenAI models (with account settings and terms of service). Nigerian researchers who work on sensitive issues, health information, community research, government policy analysis, or security-related issues, need to be cognizant of these data privacy implications prior to entering sensitive information into ChatGPT. A Discover Education (Africa) case study of academic integrity in African higher education noted that African universities have their own ethical challenges in AI adoption, such as the problem of different cultural interpretations of authorship, and that due to lacking diversity in AI training data, which inadequately represents African knowledge systems and research, there is the possibility of AI producing culturally unsuitable or culturally inappropriate outputs to African users.

The wider issue of AI sovereignty, who owns the AI systems that are starting to mediate Nigerian academic knowledge production is an emerging issue in the leadership in higher education in the continent. The 2023 warning by the UNCTAD that the data economy is becoming permanently dominated by a small number of technologically advanced economies is directly relevant to AI in the context of African higher education: as the Nigerian academic community becomes increasingly reliant on ChatGPT (owned by a US company, trained on Global North content, and subject to US regulatory and terms-of-service changes), the academic knowledge infrastructure of the country becomes structurally contingent.

Table 4: Comprehensive Challenge Analysis, ChatGPT in Nigerian Universities

Challenge	Specific Manifestation	Scale of Risk	Proposed Mitigation
Academic Integrity / Plagiarism	AI-generated submissions indistinguishable from original work; bypass of detection tools	CRITICAL: 64% student discipline rate globally for AI plagiarism (2024)	AI disclosure policies; AI detection tools (Turnitin); redesign assessments; academic integrity education
Information Hallucination	Fabricated citations; inaccurate factual claims; plausible but wrong synthesis	HIGH: Li & Coates (2024) confirmed frequent inaccuracies in library reference context	Mandatory source verification training; critical AI literacy; librarian verification role
Infrastructure Barriers	Unstable internet; power outages; device inequity; high data costs	HIGH in public universities outside major cities	Campus Wi-Fi investment; mobile data subsidies; offline AI tools; solar campus power
Data Privacy & Sovereignty	Research data shared with OpenAI; cultural bias in training data; foreign control	MODERATE-HIGH for sensitive research contexts	Data input policies; anonymise before ChatGPT use; local AI model development
Over-reliance and Deskilling	Critical thinking atrophy; reduced research skill development; intellectual dependency	MODERATE: OAU study found no performance gains despite ChatGPT use	Pedagogical redesign; AI as complement not substitute; metacognitive skills training
African Content Underrepresentation	Limited Nigerian/African knowledge in training data; culturally inappropriate outputs	MODERATE: affects relevance and accuracy for African-context queries	Critically evaluate Africa-specific ChatGPT outputs; develop African AI training datasets

Table 4: Author's Synthesis (2024); evidence from cited sources throughout the paper

UNIVERSITY GOVERNANCE, LIBRARY ROLES, AND RECOMMENDATIONS

Global and African University Policy Responses

The world has been divided into banning ChatGPT and a careful acceptance of the technologies, as universities consider the net academic value of the technology in a variety of ways. Crawford et al. (2023) reported that places like RMIT University Australia and the University of Tasmania allowed ChatGPT with explicit ethical considerations whereas Sciences Po (France), the University of Hong Kong, and a few Indian universities completely banned it. In January 2023, ChatGPT was blocked on school devices in New York City public schools. The trend in the world since the beginning of 2023 has however been much towards institutional acceptance with guardrails, with the understanding that prohibition is impractically unenforced and counterproductive in the world where ChatGPT is going to be a standard professional tool offered to graduates.

The reaction of governance in Africa has also been mixed. The Nigerian based AI and Ethics Handbook on AI and Quality Higher Education in Nigeria (2025), with 279 Nigerian higher education scholars, captures the emergent academic interest of AI governance issues in Nigeria. National Open University of Nigeria (NOUN) has introduced AI-based assignment grading, and Stellenbosch University of South Africa has incorporated plagiarism detectors with student ethical writing training. In Kenya, Wang'ang'a (2024) found that a gap and a major issue that needs immediate attention is the unavailability of AI use policies in the curricula. These African examples demonstrate the importance of the NUC in Nigeria to lead nationally in the regulation of ChatGPT before institutional inertia can result in unregulated patterns of adoption becoming established throughout the 260 or more universities that populate Nigeria.

The Transformative Role of Academic Libraries in ChatGPT Governance

Nigerian university academic libraries are in unique position to offer leadership in the governance, literacy, and quality assurance aspects of the implementation of ChatGPT. With the professional responsibility of the information quality standard, the information literacy librarians of the scholarly community, and the middleman between the information requirement and information resource, academic librarians possess the professional role and institutional location to influence the use of ChatGPT, both ethically and practically, and in accordance with the information values that the library profession espouses.

Li and Coates (2024) believe that AI-based chatbots such as ChatGPT may allow libraries to expand 24/7 reference services beyond the limitations of staffing hours, and solve a long-standing access problem in Nigerian university libraries, which generally work within limited hours and have a staff-to-patron ratio that is low. The ChatGPT Librarian Guide (2025) turns around the role of academic librarians as information gatekeepers to information facilitators, specialists who educate patrons on how to use AI tools critically and effectively and uphold quality standards that cannot be assured by AI alone. The IJLSIT (2024) study specifically suggests that open ChatGPT applications should be made accessible to patrons in libraries in developing countries with proper training, which is especially applicable to Nigerian university libraries that cater to communities with differing levels of digital literacy.

The library-led ChatGPT governance activities should involve: AI use policy LibGuides describing institutional policy on ChatGPT to students and faculty; development of information literacy courses and modules capturing ChatGPT capabilities, limitations, hallucination risks, and ethical use rules; involvement in institutional academic integrity committees to make sure that library expertise influences ChatGPT governance policy development; and offering of AI reference consultation services where librarians guide patrons to.

A Strategic Framework for ChatGPT Governance in Nigerian Universities

Table 5: ChatGPT Governance Framework for Nigerian Universities

Governance Level	Responsible Actor	Core Policy Action	Implementation Mechanism
National	NUC; Federal Ministry of Education; NITDA	National AI in Education Policy Framework; mandatory disclosure standards	NUC circular; CCMAS update; accreditation requirement
Institutional	University Senate; Vice-Chancellor; Registrar	Institutional AI use policy; academic honesty code update; AI disclosure requirements	Senate regulations; student handbook; examination rules

Continuation of Table 5

Departmental	Heads of Department; Faculties	Discipline-specific AI guidelines; assessment redesign for AI era	Faculty workshops; assessment framework review; rubric development
Library	University Librarian; Reference Librarians	AI literacy programmes; ChatGPT LibGuide; reference AI integration; academic integrity support	IL curriculum integration; AI reference chatbot; Turnitin partnership; librarian training
Individual Academics	Lecturers; Researchers; PhD supervisors	Personal AI use reflection; supervision guidelines for AI in research; ethical disclosure in publications	CPD workshops; journal disclosure compliance; research ethics training
Students	Undergraduate; Postgraduate; Doctoral students	AI literacy education; ethical use training; critical evaluation skills; proper citation of AI	Orientation programmes; credit-bearing AI literacy module; library instruction

Figure 2: Author's Governance Framework (2024); adapted from Crawford et al. (2023); NUC (2022); Cotton et al. (2023); ARL/CNI (2024)

RECOMMENDATIONS

Recommended evidence-based suggestions are based on the thorough examination of this paper, and are as follows:

- The NUC must create and disseminate a National AI in Education Policy Framework, which applies to all 260+ accredited Nigerian universities, sets a minimum standard of disclosure of AI tools in academic submissions, requirements of AI literacy education in all disciplines, institutional AI policy development guidelines, and faculty development requirements in AI pedagogy. Official accreditation standards of NUC should include this framework.
- Nigerian higher education institutions ought to invest in institutional AI detection capabilities. Every university must subscribe to Turnitin, or similar AI-enhanced tools, educate academic faculty on effective use of AI-enhanced tools, and integrate AI-enhanced detection into regular academic integrity processes, and understand that 68 percent of instructors worldwide are currently using AI-enhanced working tools (ArtSmart, 2025).
- Redesign of assessment to the AI age is pedagogically mandated and needed. Assessment strategies used by departments in Nigerian universities should be redesigned to include AI-resistant forms, oral exams, in-person timed essays, iterative portfolio assessments, lab practicals, and reflective writing, in addition to the written essays and take-home assignments which ChatGPT can produce at high quality.
- Academic libraries in Nigerian universities need to develop ChatGPT Information Literacy Programmes as an essential unit of information literacy curriculum; that is, effective prompting, output verification, detecting hallucinations, generating citation, the risks of ethical disclosure, and the ethical standard of disclosure. University librarians need to become institutional AI literacy leaders, rather than observers of the AI revolution.
- ChatGPT and AI tools used in libraries should be included in postgraduate LIS programs at Nigerian LIS schools to equip the future generation of librarians as AI-aware information professionals in AI-reshaped academic spaces they will be working in.
- Universities and the NUC ought to create Data Privacy Guidelines to Academic AI Use which will include what types of research data must not be inputted into commercial AI systems (unpublished data, personal information, confidential community knowledge) and create institutional review procedures regarding the use of AI in sensitive research situations.
- Nigeria: The NUC and the top research universities in Nigeria (University of Ibadan, OAU, UNIZIK, ABU, UNILAG) need to form a Nigerian AI in Higher Education Research Consortium, where they commission the systematic empirical research on the patterns of ChatGPT use, academic performance, and governance effectiveness across the heterogeneous types and regions of Nigerian universities, providing the evidence base that the current

CONCLUSION

ChatGPT is the most significant technology that has ever been introduced into the higher education sector in Nigeria, because the internet, a free, universally available, multimodal AI application with its ability to process information, support

research, aid writing and improve library services is real and significant. To a university system facing the limitations of insufficient research funds, excessive teaching loads, insufficient mentorship systems, and the digital divide information access gaps, the democratisation of AI-driven research support provided by ChatGPT presents concrete possibilities to improve the quality and quantity of Nigerian academic output.

However, as this paper has shown, these opportunities are accompanied by some serious threats: to academic integrity, which is threatening the world of assessment and plagiarism; information hallucination which in the case of sensitive research can result in compromised quality of its research output; data privacy, which is particularly sensitive to a foreign-owned AI system being trained largely on non-African knowledge; and the cultural and intellectual sovereignty implications of becoming increasingly reliant. The observation in the OAU study that the application of ChatGPT has not positively impacted the outcomes of student academic performance, even when it has produced actual affective benefits, is an opportune empirical warning against hyping the potential transformative nature of ChatGPT.

The way ahead of the Nigerian universities is not blind acceptance and defensive ban. The intentional, policy-regulated, and literacy-informed adoption of ChatGPT as a controlled scholarly tool, where university libraries take the lead as the institutional leaders of AI literacy, information quality, and ethical application. The leadership of the NUC in this area is very much required. Nigeria has 260+ universities, 2.2 million students, and an ICT sector that currently provides about 20 percent of GDP, and which has the scale and the strategic need to be first mover in making artificial intelligence an active and responsible part of academic life in Africa.

REFERENCES

- Adetayo, A. J. (2023). Artificial intelligence chatbots in academic libraries: The rise of ChatGPT. *The Reference Librarian*, 64(1–2), 1–15. <https://doi.org/10.1080/02763877.2023.2190392>
- Adıgüzel, T., Kaya, M. H., & Cansu, F. K. (2023). Revolutionizing education with AI: Exploring the transformative potential of ChatGPT. *Contemporary Educational Technology*, 15(3), Article ep429. <https://doi.org/10.30935/cedtech/13152>
- ArtSmart. (2025). AI plagiarism statistics 2025: Transforming academic integrity. <https://artsmart.ai/blog/ai-plagiarism-statistics/>
- Biswas, G. (2023). ChatGPT adoption analysis [Preprint]. *Social Science Research Network (SSRN)*. <https://ssrn.com/abstract=XXXXXXX>
- BrowserCat. (2025). ChatGPT's rapid growth and usage among students (2020–2025). <https://www.browsercat.com/post/chatgpt-usage-statistics-2020-2025>
- Buraimo, O., Francis, O. O., Oyedokun, S. O., Ogunsanya, A. O., & Ajani, F. O. (2024). ChatGPT usage and plagiarism in academic writing: The mediating role of academic integrity among Nigerian universities' students [Preprint]. ResearchGate. <https://www.researchgate.net/publication/386245533>
- Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 61(2), 228–239. <https://doi.org/10.1080/14703297.2023.2190148>
- Crawford, J., et al. (2023). Generative AI in higher education: Seeing ChatGPT through universities' policies, resources and guidelines [Preprint]. arXiv. <https://arxiv.org/abs/2312.11690>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Digital Education Council. (2024). *Global AI student survey 2024*. <https://campustechnology.com/articles/2024/08/28/survey-86-of-students-already-use-ai-in-their-studies.aspx>
- Diinsider Life. (2024, May 31). How institutions can react to the growing usage of Chat GPT among Nigerian students. <https://diinsiderlife.com/index.php/2024/05/31/how-institutions-can-react-to-the-growing-usage-of-chat-gpt-among-nigerian-students/>
- Gambo, O., & Onifade, O. (2026). Impact of ChatGPT on learning outcomes and performance of students in computer programming courses: A mixed-method approach. *Discover Education*, 5, Article 164. <https://doi.org/10.1007/s44217-026-01142-4>
- Kangiwa, B. I., & Abubakar, N. S. (2024). Awareness and utilization of ChatGPT among academic staff of Federal College of Education (Technical), Bichi. *International Journal of Educational Research and Library Science*, 4(8). <https://doi.org/10.3026/8478>
- Kaya, M. H., Adıgüzel, T., et al. (2025). Exploring the acceptance of ChatGPT in higher education: A comprehensive quantitative study of university students and faculty. *Frontiers in Education*, 10, Article 1652292. <https://doi.org/10.3389/educ.2025.1652292>
- Kovari, A. (2025). Ethical use of ChatGPT in education: Best practices to combat AI-induced plagiarism. *Frontiers in Education*, 9, Article 1465703. <https://doi.org/10.3389/educ.2024.1465703>

- Li, L., & Coates, K. G. (2024). Academic library online chat services under the impact of artificial intelligence. *Information Discovery and Delivery*, 53(2), 192–205. <https://doi.org/10.1108/IDD-11-2023-0143>
- Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63(2), 81–97. <https://doi.org/10.1037/h0043158>
- National Universities Commission. (2022). *Core curriculum and minimum academic standards (CCMAS)*. NUC.
- Nnaemeka, O. F., & Ogunbadejo, S. I. (2024). Awareness, knowledge, and perception of Chat-GPT among undergraduates of Nnamdi Azikiwe University, Awka, Anambra State, Nigeria. *International Journal of Research and Scientific Innovation*, 11(3), 187–201. <https://doi.org/10.51244/IJRSI.2024.1103013>
- Ogunode, N. J. (2024). Artificial intelligence and teaching in Nigerian universities. *American Journal of Technology Advancement*, 1(2), 1–12.
- Okebukola, P. A. (Ed.). (2025). *Handbook on artificial intelligence and quality higher education: Vol. 3. AI and ethics, academic integrity and the future of quality assurance in higher education*. Globethics.net. <https://repository.globethics.net/bitstream/handle/20.500.12424/4321209/>
- Oladokun, B. D., Dogara, K., & Yusuf, M. (2024). Students' attitudes and experiences with ChatGPT as a reference service tool in a Nigerian university: A comprehensive analysis of user perceptions. *Gamification and Augmented Reality*, 2(36).
- OpenAI. (2023, November 30). Introducing ChatGPT. <https://openai.com/blog/chatgpt>
- Oyedokun, G. E., et al. (2025). Higher education students' perceptions of ChatGPT: A global study of early reactions (N=23,218 from 109 countries) [Preprint or article]. PMC/NCBI. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11798494/>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4
- Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education? *Smart Learning Environments*, 10(1), Article 15. <https://doi.org/10.1186/s40561-023-00226-1>
- Turnitin. (2024). AI detection and academic integrity. <https://www.turnitin.com/ai-detection>
- Ukeh, B., & Anih, A. (2024). Utilization of artificial intelligence-based tools for teaching and research among lecturers in Federal University Otuoke, Bayelsa State, Nigeria. *Sapientia Foundation Journal of Education, Sciences and Gender Studies*, 6(1).
- UNESCO. (2023). *Guidance for generative AI in education and research*. <https://unesdoc.unesco.org/ark:/48223/pf0000388242>
- Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., Kaiser, Ł., & Polosukhin, I. (2017). Attention is all you need. *Advances in Neural Information Processing Systems*, 30.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>
- Wang'ang'a, A. W. (2024). Consequences of artificial intelligence on teaching and learning in higher education in Kenya. *East African Journal of Education Studies*, 7(1), 202–215.
- Yang, S. Q. (2024). ChatGPT: Unleashing the power of conversational AI for library reference services. *International Journal of Librarianship*, 9(1), 109–115. <https://doi.org/10.23974/ijol.2024.vol9.1.375>