International Journal of Academic Research and Development
www.allreviewjournal.com
ISSN: 2455-4197
Received: 02-04-2026, Accepted: 03-05-2026, Published: 18-05-2026
Volume 11, Issue 2, 2026, Page No. 17-24

Awareness and perceived benefits as determinants of artificial intelligence use among university researchers in Katsina State, Nigeria

Dr. Hindatu Salisu Abubakar[1], Dr. Hauwa Sani Ahmed[2], Shamsuddeen Ahmed[1], Usman Mohammed Dutsin-Ma[1], Nasir Umar Maiwada[1]

[1] Katsina State Institute of Technology and Management Central Library, Nigeria
[2] Department of Library and Information Sciences, Bayero University Kano, Nigeria

Abstract

The study investigated Awareness and Perceived Benefits as Determinants of Artificial Intelligence Use among University Researchers in Katsina State, Nigeria, focusing on the level of awareness of artificial intelligence (AI) technologies among researchers in universities in Katsina State, examining the level of use of AI tools among the researchers, and identifying the perceived benefits of using AI tools in their research activities. The study adopted a descriptive survey research design to collect data from academic staff in public universities in Katsina State, with a population drawn from FUDMA, UMYUK, and FUT Daura and a sample size of 500 selected using proportionate stratified random sampling. A structured questionnaire developed from relevant literature and measured on a Likert scale was used as the research instrument, with validity confirmed through expert review and a Content Validity Index of 0.871 indicating high reliability. Data were collected with the assistance of research assistants and library staff. The data was analyzed using SPSS version 23 with descriptive statistics such as mean, standard deviation, frequency, and percentages. The findings of researchers in Katsina State universities show a moderate level of awareness and use of artificial intelligence (AI) tools, with higher familiarity and adoption of basic applications like ChatGPT, Grammarly, DeepSeek, Scholarcy, and Mendeley, while awareness and use of advanced systems such as machine learning, predictive analytics, and expert systems remain low. They mainly use AI tools for writing support, literature review, and information retrieval, but underutilize complex tools like IBM Watson, KNIME, Weka, and Azure ML, indicating limited engagement with advanced data analysis applications. Based on the findings, it is recommended that regular practical training, workshops and seminars based on basic and advanced AI tools should be organized periodically by universities to enhance the awareness and technical competence of researchers and policies of the institutions must incorporate the use of AI tools into the research processes and academic activities, including the use of AI tools in courses of research methodology and in supervision practice.

Keywords: Awareness, perceived benefits, artificial intelligence, use, researchers

Introduction

The fast development of artificial intelligence (AI) has greatly changed the scenery of scholarly studies and sharing of information worldwide. In colleges and universities, AI technologies are actively being incorporated into the research in order to make it more efficient, accurate and accessible to information. Literature searches, data analysis, and collaboration among researchers are supported by machine learning algorithms and natural language processing systems. This change is indicative of a larger trend where digital technologies are transforming the way knowledge is created, accessed, and shared in academic settings (Chinedu, 2023) [36].

The use of AI technologies in the research process is slowly becoming a topic of concern in Nigerian universities. Researchers at universities are starting to consider AI tools to enhance productivity and the quality of academic products. In institutions however, there is a wide disparity in technology adoption, especially in states like Katsina, where technology infrastructure and digital capacity is still evolving. Consequently, the level to which researchers exploit AI tools in their scholarly activities is rather unbalanced, which means that it is necessary to investigate factors that predetermine their use.

Of these variables, the level of awareness of AI technologies is critical in the decision of whether researchers can adopt and use such tools. Awareness can be defined as the degree to which researchers are aware of the existence, functions, and possible application of AI technologies in research. Even the most sophisticated tools are unlikely to be utilized to the fullest without proper awareness. In several universities in Nigeria, it has been noted that limited exposure to AI technologies is one of the greatest barriers to acquiring AI technologies. Adeboye (2025) [2] emphasizes the need for training and capacity-building initiatives to enhance researchers' understanding and effective use of AI tools. Thus, the evaluation of the degree of awareness among university researchers in the Katsina State is critical to comprehending the level of engagement with AI-based technologies among them.

The next important aspect that determines the use of AI is the perceived benefits of these types of technologies. Perceived benefits are the degree to which researchers feel that their use of AI tools will enhance their performance in their research. The benefits of AI technologies are manifold and include: faster processing of data, better accuracy in data processing, more access to the relevant literature, and more opportunities to collaborate. Such advantages may contribute greatly to the productivity of research and innovations. According to Adewale (2024) [28], AI is transforming academic research by allowing the use of data to make decisions and more effectively create knowledge. The readiness of the researchers to use AI, however, mostly depends on whether the researchers see such benefits as meaningful and relevant to their work. See figure 1.

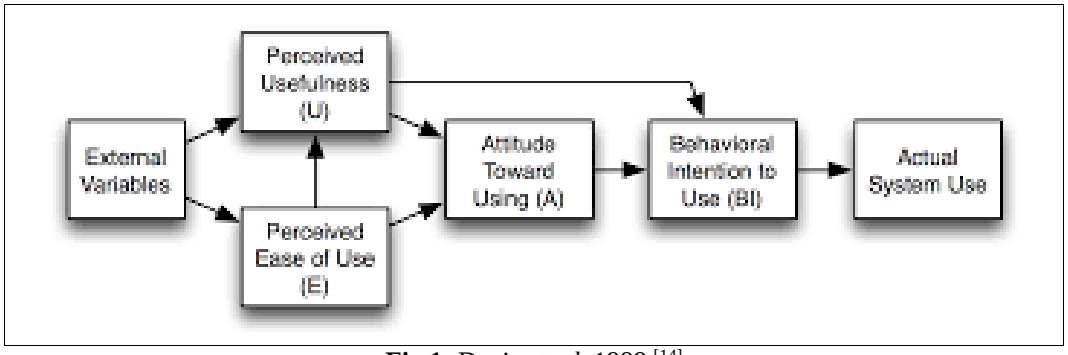

Fig 1: Davis *et. al.* 1989 [14]

The study is guided by awareness, perceived benefits, and actual use of AI tools that are framed within the assumption of the Technology Acceptance Model (Davis, 1989) [14], which supposes that the more appropriate a technology is, perceived and real, the more likely people will adopt it. Here, awareness is one of the background factors that inform perception, whereas perceived benefits directly affect the choice to use AI technologies. Although the possible benefits are high, other challenges like poor infrastructure, insufficient technical skills, and a lack of institutional support could play a role in causing ineffective use of AI tools by researchers.

With these in mind, there is a need to examine on the level of awareness and perceived benefits as the determinants of the use of artificial intelligence among university researchers in Katsina State, Nigeria.

Statement of the Problem

The implementation of artificial intelligence (AI) into the world of academic research is anticipated to lead to the efficiency and quality of academic outputs as well as innovative research activities among university researchers. Ideally, scholars in universities within the Katsina State, Nigeria, should have a sufficient insight into the AI technologies and have a clear picture of how they can be beneficial. This awareness and positive perceptions will lead to the adoption and successful utilization of AI tools in the research processes. In this regard, AI technologies would aid in conducting data analyses faster, accessing the relevant information more easily, and boosting the productivity of the research, thus contributing to the overall academic development (Abiola, 2024) [21].

Yet, the case of most universities in Katsina State seems to be below this expectation. It is becoming increasingly worrisome that researchers themselves are insufficiently aware of AI technologies and that they do not necessarily understand their benefits, which in turn impacts the level of their use. Although a certain level of awareness may be available, the adoption of AI tools may be limited by the negative or ambiguous perception of the utility of AI tools. What this implies is that the key determinants such as awareness and perceived benefits may not be adequately affecting the use of AI among researchers. Thus, the study will focus on analyzing how awareness and perceived benefits determine the use of artificial intelligence by university researchers in Katsina State, Nigeria, with an aim of making some insights that can make its effective adoption.

Research Questions

1. What is the level of awareness of artificial intelligence (AI) technologies among researchers in universities in Katsina State?
2. What is the level of use of AI tools among researchers in universities in Katsina State?
3. What are the perceived benefits of using AI tools among researchers in universities in Katsina State?

Literature Review

Artificial Intelligence (AI) is the imitation of human intelligence in machines, which can learn, reason, and make decisions. In scholarly research, AI will support efficiency by automating numerous complex tasks such as data analysis, literature review, and academic writing. Machine learning, natural language processing, and data mining technologies allow the researcher to process large amounts of data, enhance accuracy, and develop knowledge faster (Adewale, 2024; Balogun, 2023) [6, 9]. AI is slowly changing the research practice in Nigerian universities, reducing the number of manual work, improving the quality of academic works and supporting such activities as plagiarism detection and data management (Abiola, 2024; Chinedu, 2023) [1, 12]. Nevertheless, its implementations are still limited due to issues that include ethical issues, data privacy, and requirement of proper training and technical skills among researchers (Adeboye, 2025) [31].

AI in scholarly research has taken many forms, which include machine learning systems, natural language processing tools, predictive analytics, intelligent writing assistants, plagiarism detection systems, and reference management tools. These technologies can support the main research processes, such as data analysis, literature synthesis, academic writing, and collaboration, and can thereby improve the research productivity and facilitate the knowledge sharing (Adedayo, 2023; Ibrahim, 2024; Eze, 2024a; Musa, 2024) [21, 36]. Alongside these advantages, AI tools also have their limitations, such as the need to have high-quality data, technical complexity, risk of bias, and concerns related to originality and academic integrity (Abiola, 2024; Adeboye, 2025; Okafor, 2024) [1, 2, 28]. Additionally, some of the universities have limited access to infrastructure and insufficient institutional support, which further complicates their effective use (Chinedu, 2023; Musa, 2024) [12, 24]. Thus, although AI can be applied to academic research with great potential, the full potential of AI can be achieved only in case of proper addressing of the challenges.

Application of AI tools in research is the degree to which academic personnel and scholars proactively implement artificial intelligence tools in their research processes. This involves using databases like ChatGPT and DeepSeek when writing academically, Turnitin in detecting plagiarism, EndNote in reference management, and IBM Watson in data analysis. The degree of usage can be interpreted in university libraries in the context of frequency, purpose, and depth of use of these tools (Chukwu, 2024) [13]. Whereas

some researchers apply AI only occasionally and in certain tasks, others consider it a more regular part of their research process, meaning that it has varying degrees of adoption across fields and levels of experience (Musa, 2024) [24]. The importance of using AI tools cannot be overstated since it can increase the efficiency, accuracy, and productivity of the research. These tools ease the complex tasks involved in the literature review, data analysis and writing of quality research outputs, minimising the time and effort involved in producing quality research outputs. They also enhance the availability of information resources, facilitate the organization of knowledge and promote innovation in research practices (Okafor, 2022; Oladipo, 2025) [27, 29]. Nevertheless, the use of AI among researchers is relatively low to moderate because of a lack of awareness, insufficient training, ineffective infrastructure, and ethical use concerns. There are numerous researchers who continue to use the classic research methods and have not embraced the full use of the advanced AI tools in their research. Research has established that the factors that determine effective utilisation of AI tools include digital literacy, institutional support, and perceived usefulness, emphasising the importance of capacity building and supportive policies to ensure adoption (Abiola, 2024; Adeboye, 2025; Ibrahim, 2024; Musa, 2024) [1, 2, 23, 24].

The idea of the benefits of utilizing AI by researchers to facilitate information sharing is based on how academics perceive the benefits of AI tools in improving the efficiency, accuracy and collaboration of researchers in sharing information. According to the research by Ojo (2025) and Opara (2023) [27, 35], the literature review and information search process can be greatly simplified with the help of AI-powered platforms such as Claude AI. Researchers see AI as saving time and cognitive effort it takes to access and synthesize large amounts of scholarly content. AI enables scholars to spend more time on critical analysis and the production of knowledge, which in turn enhances the quality and richness of shared academic knowledge. This is in line with other studies that were carried out by Okafor (2022) [29] that show that the adoption of AI tools in reference management not only increases the productivity of researchers but also helps to publish scholarly information in time.

Moreover, the perceived advantages are further to interdisciplinary collaboration and innovation. Olowu (2025) and Udo (2023) [22, 32] emphasize the importance of AI systems such as IBM Watson in bridging various areas of research, predictive modeling, and helping to solve complex problems. Researchers like Abiola (2024); Adewale (2024) [28]; Chinedu, see AI as a medium of cross-disciplinary exchange that offers a platform where data of one field can be merged with that of another field, which can lead to the exchange of new knowledge and new solutions. This is more so the case in the Nigerian context of higher education where resources to carry out massive collaborative research may be scarce. By helping researchers find more ways to contribute to the overall body of knowledge, AI assists researchers in identifying the relevant studies, trends, and gaps more efficiently, as it is also mentioned in Okeke (2020) [30].

A system like Turnitin Pro and AI-based plagiarism detection programs are perceived to increase the quality of research and its originality (Onwuegbuchi, 2023; Uche, 2023) [34, 36]. Researchers note that AI can assist in ensuring that there is accurate attribution, duplication of effort is eliminated, and high standards are maintained in scholarly communication. Nevertheless, as Oladipo (2025) and Oluwaseun (2021) [31, 33] observe, these advantages are compensated with issues related to data privacy, ethical use, and responsible adoption of AI. However, the general impression is good, where AI is seen as a disruptive enabler to efficient, credible, and collaborative information sharing in research settings.

Theoretical Framework

The study employed TAM as one of the most popular models that are used in explaining how people can accept and use new technologies is the Technology Acceptance Model (TAM) developed by Davis (1989) [14]. The model hypothesizes that the perceived usefulness and perceived ease of use are two major factors that determine the attitude of users towards a technology, which in turn, affects the behavioural intention and actual use. Perceived usefulness is the level of degree to which the technology is believed to be without strain, whereas perceived ease of use is the level of degree to which the technology is thought to be strain free. Davis (1989) [14] argues that the higher the perception of a technology among users that it is useful and easy to use, the higher the expectation of developing a positive attitude towards it and using it in practice. The model is extensively used in the research of technology adoption in various areas, such as education, library science, and information systems (Davis, 1989; Chinedu, 2023) [12, 14].

Regarding the context of this study, the Technology Acceptance Model (TAM) can be used to provide a relevant theoretical framework to understand the use of artificial intelligence (AI) tools by university researchers in Katsina State, Nigeria. The model can be used to explain why the awareness of AI technologies can influence the perceptions of researchers towards the usefulness and ease of use of such tools, which in turn preconditions the change in the attitude of the researchers to the need to use such tools. In this regard, the perceived benefits are similar to the perceived usefulness in TAM because the researchers are more likely to utilize AI tools in TAM when they can see that such tools help improve research performance, productivity, and quality (Abiola, 2024; Adeboye, 2025) [2, 28]. Thus, TAM contributes to the present research by showing that awareness and perceived benefits are critical factors influencing the use of AI tools by researchers as they determine attitudes and behavioural intentions towards adoption (Musa, 2024; Ibrahim, 2024) [23, 24].

Methodology

The study used a descriptive survey research design since this research design was seen to be appropriate in gathering data of a large number of respondents in order to describe the current situations, perceptions, and practices of the academic staff in the public universities within Katsina State. The study population included academic staff of three publicly-owned universities, namely the Federal University, Dutsin-Ma (FUDMA) with 1,078 employees, the University of Umaru Musa Yar'adua, Katsina (UMYUK) with 1,190 employees, and the Federal University of Transportation, Daura (FUT Daura) with 631 employees. To have a fair representation of respondents in each institution based on their population sizes, and to determine the sample size, proportionate stratified random sampling was employed, which resulted in 500 academic staff. The study tool was a

structured questionnaire designed by the researcher through the use of relevant literature and measured using a Likert scale. Validity was tested by the use of expert reviews and validity index was tested by Content Validity Index (CVI), which yielded a coefficient of 0.871 which is high internal consistency. The researcher collected the data personally with the help of research assistants and library staff and analyzed it with the help of the SPSS version 23 that allows analyzing the data with the help of descriptive statistics, i.e., mean, standard deviation, frequency, and percentages.

Response Rate

Out of 500 questionnaires that were distributed, 442 questionnaires were returned and could be used to analyze the data, which represented an 88.4-percent response rate that was achieved by close follow-up and effective organization during data collection.

Table 1: What is the level of awareness of artificial intelligence (AI) technologies among researchers in universities in Katsina State?

Items	SD		D		UD		A		SA		Mean	STD
1. Machine Learning (ML) Common Tools: IBM Watson, RapidMiner, Orange, Weka												
I am aware that IBM Watson uses machine learning to analyze research data and predict trends.	88	22.1	144	36.2	40	10.1	126	31.7	-	-	2.51	1.15
I know that RapidMiner supports predictive modeling for academic research.	128	32.2	136	34.2	16	4.0	111	27.9	7	1.8	2.33	1.24
I am familiar with Orange as a machine learning tool for data visualization and pattern recognition.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
I understand that Weka can automate complex statistical analyses in research projects.	80	20.1	128	32.2	24	6.0	128	32.2	38	9.5	2.79	1.34
2. Natural Language Processing (NLP) Common Tools: ChatGPT, Claude AI, DeepSeek, SpaCy												
I am aware that ChatGPT can summarize academic texts and assist in writing research sections.	40	10.1	56	14.1	48	12.1	192	48.2	62	15.6	3.45	1.20
I know that Claude AI supports contextual interpretation of literature.	88	22.1	120	30.2	8	2.0	104	26.1	78	19.6	2.91	1.49
I am familiar with DeepSeek for advanced text retrieval and synthesis.	64	16.1	104	26.1	64	16.1	96	24.1	70	17.6	3.01	1.36
I understand that SpaCy can process and analyze large volumes of text in research.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
3. AI-Powered Literature Review Tools Common Tools: Claude AI, ChatGPT, DeepSeek, Scholarcy												
I know ChatGPT can generate structured summaries of academic research.	40	10.1	56	14.1	48	12.1	192	48.2	62	15.6	3.45	1.20
I am aware that Claude AI helps automate literature review and contextual analysis.	96	24.1	136	34.2	8	2.0	112	28.1	46	11.6	2.69	1.40
I am familiar with DeepSeek for efficient information retrieval across databases.	88	22.1	144	36.2	40	10.1	126	31.7	-	-	2.51	1.15
I understand that Scholarcy condenses long research articles for easier review.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
4. Predictive Analytics Systems Common Tools: IBM Watson, RapidMiner, KNIME, Microsoft Azure ML												
I am aware that IBM Watson predicts research outcomes using historical data.	128	32.2	136	34.2	16	4.0	111	27.9	7	1.8	2.33	1.24
I know RapidMiner supports trend forecasting in academic studies.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
I am familiar with KNIME for predictive modeling and data mining.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I understand that Microsoft Azure ML can assist in evidence-based research decision-making.	40	10.1	248	62.3	16	4.0	80	20.1	14	3.5	2.45	1.03
5. AI-Based Data Analysis Tools Common Tools: IBM Watson, Tableau AI, SAS Viya, RapidMiner												
I am aware that IBM Watson can identify hidden patterns in complex datasets	128	32.2	136	34.2	16	4.0	111	27.9	7	1.8	2.33	1.24
I know Tableau AI enhances data visualization for research findings.	72	18.1	144	36.2	24	6.0	136	34.2	22	5.5	2.73	1.26
I am familiar with SAS Viya as an AI-driven analytics platform.	72	18.1	144	36.2	24	6.0	136	34.2	22	5.5	2.73	1.26
I understand that RapidMiner supports regression, clustering, and hypothesis testing.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
6. Intelligent Writing Assistants Common Tools: ChatGPT, DeepSeek, Grammarly, Writesonic												
I am aware that ChatGPT assists in drafting and refining academic manuscripts.	96	24.1	136	34.2	8	2.0	112	28.1	46	11.6	2.69	1.40
I know DeepSeek can generate technical content for research writing.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
I am familiar with Grammarly for improving grammar and clarity in research papers.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29
I understand that Writesonic helps enhance coherence and style in writing.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
7. Plagiarism Detection Systems, common Tools: Turnitin, Grammarly, Unicheck, PlagScan												
I am aware that Turnitin detects similarities to ensure originality in research work.	40	10.1	56	14.1	48	12.1	192	48.2	62	15.6	3.45	1.20
I know Grammarly can highlight potential plagiarism in manuscripts.	72	18.1	64	16.1	32	8.0	168	42.2	62	15.6	3.21	1.37
I am familiar with Unicheck for checking document originality.	40	10.1	248	62.3	16	4.0	80	20.1	14	3.5	2.45	1.03
I understand that PlagScan supports plagiarism detection in academic submissions.	72	18.1	144	36.2	24	6.0	136	34.2	22	5.5	2.73	1.26
AI-Powered Reference Management Tools Common Tools: EndNote, Zotero, Mendeley, RefWorks												
I am aware that EndNote automates citation and bibliography management.	72	18.1	96	24.1	16	4.0	160	40.2	54	13.6	3.07	1.38
I know Zotero helps organize and store references for research projects.	144	36.2	72	18.1	24	6.0	112	28.1	46	11.6	2.61	1.49
I am familiar with Mendeley as a collaborative reference management tool.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29
I understand that RefWorks assists in formatting citations accurately.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
8. Expert Systems (Decision Support Systems) Common Tools: IBM Watson, ExpertChoice, DEXi, CLIPS												
I am aware that IBM Watson provides decision support for research design and analysis.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
I know ExpertChoice assists in multi-criteria decision-making in research.	128	32.2	112	28.1	-	-	96	24.1	62	15.6	2.63	1.52
I am familiar with DEXi for building expert decision models.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03

I understand that CLIPS simulates human expertise to support academic decisions.	104	26.1	80	20.1	8	2.0	144	36.2	62	15.6	2.95	1.49
9. AI for Research Collaboration and Knowledge Management: Common Tools: Claude AI, ChatGPT, Notion AI, Slack AI												
I am aware that Claude AI supports collaborative research writing and idea generation.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I know ChatGPT can facilitate knowledge sharing among research teams.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29
I am familiar with Notion AI for managing shared research notes and projects.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I understand that Slack AI helps summarize team discussions and track tasks	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29

Field Survey 2026, Key: SD= Strongly Disagree; D= Disagree; UD= Undecided; A= Agree; SA= Strongly Agree)

The awareness of artificial intelligence (AI) technologies among the researchers in Katsina State universities is moderate, but with different levels of awareness across various applications of AI. ChatGPT had the highest awareness (mean = 3.45, STD = 1.20), among the Natural Language Processing (NLP) tools, meaning that the majority of the researchers are aware of its use in summarizing scholarly texts and helping with the process of writing research papers. The moderately moderate to low awareness of text analysis and retrieval tools was measured as moderate (mean = 2.91, STD = 1.49) and moderate to low (mean = 3.01, STD = 1.36) by Claude AI and DeepSeek (mean = 2.31, STD = 1.18), respectively. Correspondingly, AI-based literature review tools awareness was medium regarding ChatGPT (mean = 3.45, STD = 1.20) and Scholarcy (mean = 3.5, STD = 2.31), but lower regarding Claude AI (mean = 2.69, STD = 1.40), and indicating that few people use advanced contextual review tools. In the case of machine learning platforms like IBM Watson (mean = 2.51, STD = 1.15), RapidMiner (mean = 2.33, STD = 1.24), Orange (mean = 2.31, STD = 1.18), and Weka (mean = 2.79, STD = 1.34), awareness was typically low, with limited exposure to predictive modeling and data analysis systems.

Moreover, the awareness of predictive analytics systems, including KNIME (mean = 2.49, STD = 1.35) and Microsoft Azure ML (mean = 2.45, STD = 1.03) was low, which means there are knowledge gaps in the area of predictive analytics tools. The data analysis tools based on AI, such as Tableau AI (mean = 2.73, STD = 1.26) and SAS Viya (mean = 2.73, STD = 1.26) were rather well known compared to the Writesonic (mean = 2.31, STD = 1.03). The detection software of plagiarism like Turnitin (mean = 3.45, STD = 1.20) was well-recognized and thus it may be inferred that it is widely used to keep academic integrity. For reference management tools, Mendeley (mean = 3.33, STD = 1.29) and EndNote (mean = 3.07, STD = 1.38) were moderately known, while Zotero (mean = 2.61, STD = 1.49) and RefWorks (mean = 2.49, STD = 1.35) showed lower awareness. In general, expert systems with moderate awareness and more developed AI tools like IBM Watson, ExpertChoice, CLIPS, Slack AI, and Notion AI all had low to moderate awareness, indicating that advanced AI systems are not yet fully integrated into the daily academic activities of the researchers in Katsina State universities.

Table 2: To determine the level of use of AI tools among researchers in universities in Katsina State.

Items	SD		D		UD		A		SA		Mean	STD
1. Machine Learning (ML) Tools												
I am using IBM Watson to analyze research data and predict trends.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using RapidMiner to support predictive modeling for academic research.	128	32.2	136	34.2	16	4.0	111	27.9	7	1.8	2.33	1.24
I am using Orange for data visualization and pattern recognition in research projects.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
I am using Weka to automate complex statistical analyses in my studies.	80	20.1	128	32.2	24	6.0	128	32.2	38	9.5	2.79	1.34
2. Natural Language Processing (NLP) Tools												
I am using ChatGPT to summarize academic texts and assist in drafting research sections.	40	10.1	56	14.1	48	12.1	192	48.2	62	15.6	3.45	1.20
I am using Claude AI for contextual interpretation of literature.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using DeepSeek for advanced text retrieval and synthesis across sources.	64	16.1	104	26.1	64	16.1	96	24.1	70	17.6	3.01	1.36
I am using SpaCy to process and analyze large volumes of research text.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
3. AI-Powered Literature Review Tools												
I am using Claude AI to automate literature review and contextual analysis.	40	10.1	56	14.1	48	12.1	192	48.2	62	15.6	3.45	1.20
I am using ChatGPT to generate structured summaries of academic research.	96	24.1	136	34.2	8	2.0	112	28.1	46	11.6	2.69	1.40
I am using DeepSeek for efficient information retrieval across databases.	88	22.1	144	36.2	40	10.1	126	31.7	-	-	2.51	1.15
I am using Scholarcy to condense long research articles for easier review.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
4. Predictive Analytics Systems												
I am using IBM Watson to predict research outcomes using historical data.	128	32.2	136	34.2	16	4.0	111	27.9	7	1.8	2.33	1.24
I am using RapidMiner for trend forecasting in academic studies.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
I am using KNIME to build predictive models and perform data mining.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using Microsoft Azure ML to support evidence-based research decision-making.	40	10.1	248	62.3	16	4.0	80	20.1	14	3.5	2.45	1.03
5. AI-Based Data Analysis Tools												
I am using IBM Watson to identify hidden patterns in complex datasets.	128	32.2	136	34.2	16	4.0	111	27.9	7	1.8	2.33	1.24
I am using Tableau AI to enhance data visualization for research findings.	72	18.1	144	36.2	24	6.0	136	34.2	22	5.5	2.73	1.26
I am using SAS Viya as an AI-driven analytics platform for my research.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using RapidMiner for regression, clustering, and hypothesis testing.	120	30.2	136	34.2	56	14.1	72	18.1	14	3.5	2.31	1.18
6. Intelligent Writing Assistants												
I am using ChatGPT to draft and refine academic manuscripts.	96	24.1	136	34.2	8	2.0	112	28.1	46	11.6	2.69	1.40
I am using DeepSeek to generate technical content for research writing.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
I am using Grammarly to improve grammar and clarity in my papers.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29
I am using Writesonic to enhance coherence and style in writing.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03

7. Plagiarism Detection Systems												
I am using Turnitin to detect similarities and ensure originality in research work.	40	10.1	56	14.1	48	12.1	192	48.2	62	15.6	3.45	1.20
I am using Grammarly to highlight potential plagiarism in manuscripts.	72	18.1	64	16.1	32	8.0	168	42.2	62	15.6	3.21	1.37
I am using Unicheck to check document originality.	40	10.1	248	62.3	16	4.0	80	20.1	14	3.5	2.45	1.03
I am using PlagScan to support plagiarism detection in academic submissions.	72	18.1	144	36.2	24	6.0	136	34.2	22	5.5	2.73	1.26
8. AI-Powered Reference Management Tools												
I am using EndNote to automate citation and bibliography management.	72	18.1	96	24.1	16	4.0	160	40.2	54	13.6	3.07	1.38
I am using Zotero to organize and store references for research projects.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using Mendeley as a collaborative reference management tool.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29
I am using RefWorks to format citations accurately.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
9. Expert Systems (Decision Support Systems												
I am using IBM Watson to provide decision support for research design and analysis.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
I am using ExpertChoice for multi-criteria decision-making in research.	128	32.2	112	28.1	-	-	96	24.1	62	15.6	2.63	1.52
I am using DEXi to build expert decision models.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
I am using CLIPS to simulate human expertise in academic decisions.	104	26.1	80	20.1	8	2.0	144	36.2	62	15.6	2.95	1.49
10. AI for Research Collaboration and Knowledge Management												
I am using Claude AI to support collaborative research writing and idea generation.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using ChatGPT to facilitate knowledge sharing among research teams.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29
I am using Notion AI to manage shared research notes and projects.	112	28.1	136	34.2	40	10.1	64	16.1	46	11.6	2.49	1.35
I am using Slack AI to summarize team discussions and track tasks.	56	14.1	72	18.1			224	56.3	46	11.6	3.33	1.29

Field Survey 2026, Key: SD= Strongly Disagree; D= Disagree; UD= Undecided; A= Agree; SA= Strongly Agree)

The results show that the researchers in the universities of Katsina State have a moderate level of use of artificial intelligence (AI) tools, with higher adoption rates among the researchers who use user-friendly and productivity-oriented applications. Moderate use is made of Natural Language Processing (NLP) tools, including ChatGPT (mean = 3.45, STD = 1.20), DeepSeek (mean = 3.01, STD = 1.36), and SpaCy (mean = 3.5, STD = 2.31). Nonetheless, tools such as Claude AI (mean = 2.49, STD = 1.35) are underutilized which implies that there is little interaction with more advanced contextual interpretation capabilities. Likewise, the literature review tools powered by AI, including Scholarcy (mean = 3.5, STD = 2.31) and Claude AI (mean = 3.45, STD = 1.20) are used fairly moderately to retrieve and summarize information.

Moreover, machine learning or predictive analytics software (i.e. IBM Watson, RapidMiner, Orange, Weka, KNIME, and Microsoft Azure ML) have low to moderate usage meaning they are not widely used to perform advanced data analysis and forecasting. Data analysis tools that are based on AI, such as Tableau AI (mean = 2.73, STD = 1.26) and SAS Viya (mean = 2.49, STD = 1.35), are moderately used, whereas intelligent writing assistants, such as Grammarly (mean = 3.33, STD = 1.29) and ChatGPT (mean = 2.69, STD = 1.40), are more commonly used, as compared to Writesonic and DeepSeek. The systems of plagiarism detection, in particular Turnitin (mean = 3.45, STD = 1.20), are highly used, indicating a high level of attention to the issue of academic integrity. Reference management tools, including Mendeley (mean = 3.33, STD = 1.29) and EndNote (mean = 3.07, STD = 1.38) are also used moderately, and expert systems and collaborative AI-based tools like IBM Watson, DEXi, Notion AI, and Slack AI are not yet fully adopted by researchers into their workflows.

Table 3: What is the perceived benefits of using AI tools among researchers in universities in Katsina State?

Items	**SD**		**D**		**UD**		**A**		**SA**		**Mean**	**STD**
Using AI tools (e.g., Claude AI, DeepSeek, and Scholarcy) helps me complete literature reviews and information retrieval more efficiently.	72	18.1	96	24.1	16	4.0	160	40.2	54	13.6	3.07	1.38
AI systems (e.g., IBM Watson, RapidMiner) improve the accuracy and reliability of my research data analysis.	184	46.2	80	20.1	88	22.1	24	6.0	22	5.5	2.31	1.03
AI platforms (e.g., ChatGPT, Notion AI, and Slack AI) enhance collaboration and the sharing of research knowledge among team members.	80	20.1	184	46.2	88	22.1	24	6.0	22	5.5	2.31	1.03
AI-powered reference management tools (e.g., EndNote, Zotero, Mendeley, and RefWorks) simplify citation management and reduce errors in referencing.	72	18.1	144	36.2	24	6.0	136	34.2	22	5.5	2.73	1.26
AI-based plagiarism detection systems (e.g., Turnitin, PlagScan, and Grammarly) help maintain originality and uphold research integrity.	80	20.1	88	22.1	16	4.0	120	30.2	94	23.6	3.15	1.50
Predictive analytics and expert systems (e.g., IBM Watson, KNIME, and ExpertChoice) support better decision-making and forecasting of research outcomes.	88	22.1	96	24.1	-	-	152	38.2	62	15.6	3.01	1.46
Intelligent writing assistants (e.g., ChatGPT, Grammarly, Writesonic, and DeepSeek) improve the clarity, coherence, and overall quality of academic writing.	96	24.1	72	18.1	16	4.0	160	40.2	54	13.6	3.07	1.38

(Field Survey 2026, Key: SD= Strongly Disagree; D= Disagree; UD= Undecided; A= Agree; SA= Strongly Agree)

The results have shown that researchers believe that the artificial intelligence (AI) tools can be extremely useful in enhancing efficiency in literature review and information retrieval procedures. It is claimed that such tools as Claude AI, DeepSeek and Scholarcy can drastically reduce the time it takes to manually search and synthesize academic materials, and thus enhance the productivity of research efforts. In the same way, intelligent writing assistants such as ChatGPT, Grammarly, Writesonic, and DeepSeek can improve the clarity, coherence, and overall quality of academic writing and enable researchers to present the findings more effectively (mean = 3.07, STD = 1.38). These findings indicate that AI tools are especially appreciated in terms of their ability to make the process of accomplishing complex academic tasks and enhancing the efficiency of the writing process easier.

Moreover, the respondents admitted that AI helps to ensure the integrity of the research and facilitate the collaboration in academia. Plagiarism detecting systems like Turnitin, PlagScan and Grammarly were found important in the achievement of originality and ethical consideration in academic work (mean = 3.15, STD = 1.50), although reference management systems such as EndNote, Zotero, Mendeley, and RefWorks also proved useful in simplifying the processes of citing the work and in correcting errors that occur during referencing (mean = 2.73, STD = 1.26). In addition, predictive analytics and expert systems like IBM Watson, KNIME and ExpertChoice were identified as playing a role in supporting decision making and forecasting research results (mean = 3.01, STD = 1.46) although AI based data analysis tools were relatively lower in their perceived impact on accuracy and reliability. Even collaboration AI platforms, such as ChatGPT, Notion AI, and Slack AI, were perceived as moderately helpful (mean = 2.31, STD = 1.03).

Discussion of Findings

1. Researchers in Katsina State universities show a moderate level of awareness of artificial intelligence (AI) technologies, with higher awareness for ChatGPT (mean = 3.45) and moderate awareness for tools like Scholarcy, Grammarly, Claude AI, and DeepSeek, while machine learning and predictive analytics tools such as IBM Watson, RapidMiner, KNIME, and Microsoft Azure ML record generally low awareness. AI-based data analysis and reference management tools like Mendeley and EndNote are moderately known, whereas Zotero, RefWorks, and advanced systems such as ExpertChoice, CLIPS, Slack AI, and Notion AI show low awareness. Consistent with Adeboye (2025) [2] and Akinwale (2024a), this points to the need for targeted literacy programs. Universities should therefore implement structured AI training, develop mentorship systems for experienced users to guide colleagues, and provide access to online tutorials and workshops on advanced AI applications.
2. Researchers in Katsina State universities show a moderate level of use of AI tools, with higher adoption of user-friendly applications such as ChatGPT, DeepSeek, Grammarly, and SpaCy, mainly for writing support, literature review, and text processing tasks. However, advanced tools like Claude AI, machine learning platforms (IBM Watson, RapidMiner, Weka), and predictive analytics systems (KNIME, Microsoft Azure ML) are generally underutilized, indicating limited engagement with complex data analysis. These findings correspond with Adewale (2024) and Musa (2024) [6, 24], who emphasized AI's potential to enhance research productivity while noting underutilization of sophisticated tools. Universities should highlight case studies demonstrating measurable AI benefits, integrate AI tools into research methodology courses, and recognize AI-assisted outputs in performance metrics to promote adoption.
3. Researchers suggest that AI tools are a powerful catalyst in improving efficiency, clarity, and quality of research outputs in literature review, information retrieval, and academic writing. Claude AI, DeepSeek, Scholarcy, ChatGPT, and Grammarly are all examples of AI tools that have been shown to improve efficiency, clarity, and quality of research outputs in literature review, information retrieval, and academic writing. They also recognize that AI aids research integrity and scholarly work by detecting plagiarism via Turnitin, PlagScan, and Grammarly, and references management systems such as EndNote, Zotero, and Grammarly, which simplifies citation processes. These findings are in line with Adewale (2024) and Musa (2024) [21], who highlighted the potential of AI to improve the productivity of the research process, but they also noted that there is a lack of use of sophisticated tools. To encourage the adoption of AI, the universities need to emphasize case studies of measurable AI benefits, teach AI tools as part of research methodology courses and identify AI-aided output in performance ratings.

Conclusions

The research concludes that the awareness and use of artificial intelligence (AI) tools among researchers at universities in Katsina State are moderately high, with higher familiarity and adoption of basic, user-friendly applications such as ChatGPT, Grammarly, and DeepSeek, but advanced tools like machine learning, predictive analytics, and expert systems are underutilized. It also shows that researchers have a rather positive view of AI, as they see its benefits in the efficiency improvement, writing quality enhancement, literature review support, academic integrity, and citation management. Nevertheless, the low awareness of more sophisticated AI systems and selective usage of more sophisticated tools suggest that the full potential of AI in scholarly research is yet to be fully exploited.

Recommendations

Based on the conclusions drawn, the following recommendations are made:

1. Regular practical training, workshops and seminars based on basic and advanced AI tools should be organized periodically by universities with an aim of enhancing the awareness and technical competence of researchers.
2. The policies of the institutions must incorporate the use of AI tools into the research processes and academic activities, including the use of AI tools in courses of research methodology and in supervision practice.
3. The management of the university must ensure that there is sufficient digital infrastructure and incentives on the outputs of AI-assisted research to encourage its broader adoption.

References

1. Abiola KS. Institutional policies for ethical AI use: Balancing technological advancement and academic integrity in Nigerian universities. Journal of University Governance and Policy,2024:13(2):110–125.
2. Adeboye FS. Bridging the digital divide: The need for AI training in Nigerian higher education institutions. Journal of Professional Development in Education,2025:19(1):99–113.
3. Adedayo MT. Predictive analytics in educational research: AI tools and their potential impact on student performance prediction in Nigerian universities. Journal of Predictive Analytics in Education,2023:5(2):134–148.

4. Adesina FO. Contextual interpretation in literature reviews: A case for Claude AI in academic research. Journal of Educational Technology,2025:21(3):93–105.
5. Adewale DO. Turnitin Pro and plagiarism detection: Safeguarding research integrity in Nigerian universities. Nigerian Journal of Academic Integrity,2023:7(3):50–62.
6. Adewale DO. Artificial intelligence and its role in revolutionizing research practices in higher education: A conceptual framework. Nigerian Journal of Educational Technology,2024:15(2):65–80.
7. Akinwale DO. AI literacy for research: Training scholars to harness Claude AI, IBM Watson, and Turnitin Pro in Nigerian universities. Journal of Digital Education,2024a:13(2):47–60.
8. Akinwale DO. Leveraging IBM Watson for data analysis: Enhancing research productivity in Nigerian higher education. Journal of Data Analytics and Research,2024b:14(1):40–55.
9. Balogun SA. The role of machine learning and natural language processing in supporting educational research: A focus on AI technologies. African Journal of Higher Education Research,2023:24(1):112–128.
10. Balogun SA. Efficiency and productivity in research: The role of IBM Watson in Nigerian universities. Journal of Educational Management,2024:13(1):80–95.
11. Bamidele OA. AI tools for writing grant proposals: The role of ChatGPT in enhancing grant application success in Nigerian universities. Journal of Higher Education Funding,2024:11(3):40–55.
12. Chinedu AR. Artificial intelligence in research: Changing the landscape of knowledge creation and management in Nigerian universities. Journal of Educational Innovations,2023:12(3):90–105.
13. Chukwu PN. Artificial intelligence and big data analysis in research: Opportunities and challenges for Nigerian universities. Journal of Data Science and Research,2024:9(3):78–92.
14. Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly,1989:13(3):319–340.
15. Eze RN. Research productivity among Nigerian academic staff: Challenges and opportunities. African Journal of Educational Research,2021:15(2):110–124.
16. Eze RN. Improving research productivity with EndNote: The role of reference management tools in Nigerian universities. Journal of Scholarly Writing,2023:15(3):78–92.
17. Eze RN. The impact of artificial intelligence in enhancing data analysis and visualization in higher education research. African Journal of Educational Data Science,2024a:14(1):110–125.
18. Eze RN. The quality and impact of research productivity in Nigerian universities. African Journal of Educational Studies,2024b:17(2):112–128.
19. Ibe AN. The role of academic staff in enhancing quality education in public universities: A case study of Nigerian universities. Journal of Higher Education Management,2019:22(4):140–152.
20. Ibe CF. Automating literature review in academic research: The role of Claude AI in Nigerian universities. Journal of Educational Technology Research,2023:20(4):110–125.
21. Ibekwe EA. Plagiarism detection and academic productivity: The role of Turnitin Pro in Nigerian higher education. Journal of Higher Education Integrity,2024:11(1):120–135.
22. Ibrahim TS. The role of IBM Watson in enhancing research efficiency in Nigerian universities. African Journal of Educational Innovation,2023:10(4):115–130.
23. Ibrahim TS. AI tools for academic writing and research integrity: Turnitin, ChatGPT, and EndNote in Nigerian universities. Journal of Educational Integrity,2024:10(1):55–70.
24. Musa OI. Building confidence in AI use for research: A path to improving research productivity in Nigerian universities. Nigerian Journal of Research Methods,2024:8(2):76–85.
25. Ofor-Douglas S. Artificial intelligence and the sustainability of the teaching profession in Rivers State universities. Journal of Educational Sustainability,2025:12(2):70–85.
26. Ogunleye TA. Leveraging IBM Watson for data analysis in educational research: A review of applications in Nigerian universities. Journal of Data Analytics in Education,2024:19(1):115–130.
27. Ojo AO. Interdisciplinary approaches to literature reviews in research: The role of Claude AI. International Journal of Educational Research,2025:8(3):60–72.
28. Okafor CA. Research productivity and its role in knowledge advancement in Nigerian universities: A theoretical approach. Journal of Higher Education Research,2024:19(1):45–60.
29. Okafor CO. Adoption of AI-powered reference management tools among academic staff in Nigerian universities: A technology acceptance model perspective. Journal of Educational Technology,2022:19(4):145–160.
30. Okeke CA. Education and the transformation of society: A conceptual approach to personal development and societal progress. Nigerian Journal of Educational Studies,2020:18(3):65–80.
31. Oladipo I. Data privacy concerns in AI-driven research: A critical review of ethical and legal issues in Nigerian universities. Journal of Educational Data Protection,2025:7(1):39–52.
32. Olowu MI. Interdisciplinary research through AI: A case study of IBM Watson in Nigerian universities. Journal of Cross-Disciplinary Studies,2025:18(2):140–154.
33. Oluwaseun AO. Ethical considerations in the use of AI tools for research in public universities: A Nigerian perspective. Journal of Ethics in Education,2021:18(3):90–102.
34. Onwuegbuchi EO. Turnitin Pro and innovation in research: Reducing plagiarism to enhance creativity and originality in Nigerian universities. Nigerian Journal of Innovation and Research,2023:6(4):89–103.
35. Opara FI. AI-powered literature review and information retrieval in higher education research: A case study of Claude AI. Journal of Academic Research Methods,2023:17(2):130–145.
36. Uche MI. Ensuring research integrity with AI: The role of Turnitin Pro in academic writing and plagiarism detection. Journal of Academic Integrity,2023:12(2):50–65.
37. Udo OK. Predictive models in research: Using IBM Watson to solve real-world problems in Nigerian universities. Journal of Applied Research,2023:16(1):67–82.