



UTILIZATION OF ARTIFICIAL INTELLIGENCE TOOLS FOR RESEARCH AMONG LIBRARY AND INFORMATION SCIENCE RESEARCHERS IN POLYTECHNIC LIBRARIES IN RIVERS STATE

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Abstract

This study investigated the utilization of artificial intelligence (AI) tools for research among researchers. A descriptive survey research design was adopted for the study. The population comprised researchers in polytechnic libraries in Rivers State. Purposive sampling was used to select only librarians that are engaged in academic research. Data were collected using a structured online questionnaire designed on a four-point Likert scale. The instrument was validated by experts. 17 responses received were found valid for analysis. The data were analyzed using mean and standard deviation. The findings revealed that researchers extensively utilize various AI tools, including ChatGPT, AI-powered literature search platforms, writing assistants, citation management software, and AI-assisted data analysis tools, throughout different stages of the research process. The study further found that AI tools have a significant positive impact on research output by improving research productivity, enhancing literature reviews, facilitating data analysis, improving academic writing, and increasing overall research efficiency. The findings also showed that researchers generally have positive perceptions toward the use of AI, recognizing it as a valuable tool that supports innovation and productivity while complementing rather than replacing human expertise. However, the study identified several challenges affecting the effective utilization of AI tools, including inaccurate AI-generated information, inadequate training, ethical concerns, poor internet connectivity, the high cost of premium AI platforms, and the absence of comprehensive institutional policies. The study concludes that artificial intelligence has become an indispensable technology for modern research, enhancing the quality and efficiency of scholarly activities. It recommends that universities and research institutions provide researchers with continuous AI training, institutional access to AI platforms, clear ethical guidelines, improved digital infrastructure, and comprehensive AI governance policies to promote the responsible and effective utilization of AI tools in research.

Keywords: Artificial Intelligence, AI Tools, Research Output, Researchers, Research Productivity, Academic Research.



Introduction

The rapid advancement of digital technologies has transformed the global research landscape, fundamentally changing how knowledge is created, accessed, analysed, and disseminated. Higher education institutions, including polytechnics, are increasingly integrating emerging technologies into teaching, learning, and research activities to improve productivity and scholarly output. Among these technological innovations, Artificial Intelligence (AI) has emerged as one of the most disruptive technologies of the Fourth Industrial Revolution, with significant implications for academic research (Hossain, 2023). AI-powered tools are reshaping traditional research workflows by automating repetitive tasks, enhancing information retrieval, facilitating data analysis, improving academic writing, and supporting evidence-based decision-making. Consequently, researchers across various disciplines are increasingly relying on AI tools to improve research efficiency, accuracy, and productivity (Qaffas, 2024)

Library and Information Science (LIS) lecturers occupy a unique position within higher education because they serve not only as researchers but also as information professionals responsible for promoting information literacy, digital scholarship, and the effective utilization of emerging technologies. In Nigerian polytechnics, particularly those located in Rivers State, LIS lecturers are expected to engage in quality research to support career progression, institutional accreditation, and national development. However, increasing research demands, limited funding, inadequate access to scholarly resources, and growing publication expectations have intensified the need for innovative technologies capable of improving research effectiveness. AI tools have therefore become valuable resources that can assist lecturers throughout the entire research process, from identifying research problems and conducting literature reviews to analysing data and preparing manuscripts for publication (Opele et al., 2024)

Artificial Intelligence refers to the capability of computer systems to simulate human intelligence by performing tasks such as learning, reasoning, problem-solving, language understanding, pattern recognition, and decision-making (Sarker, 2022). Modern AI systems employ technologies such as machine learning, natural language processing, deep learning, and generative AI to perform complex cognitive tasks with minimal human intervention. Within academic research, AI tools are



software applications that utilize these technologies to assist researchers in retrieving scholarly information, generating research ideas, analysing quantitative and qualitative data, summarizing literature, improving academic writing, managing citations, detecting plagiarism, and enhancing research collaboration. Rather than replacing researchers, these tools complement human expertise by reducing the time required to complete routine research activities and enabling researchers to focus on critical thinking and knowledge creation.

Several AI-powered tools have become indispensable across different stages of the research process by enhancing efficiency, accuracy, and productivity. Generative AI tools such as ChatGPT, Google Gemini, and Microsoft Copilot assist researchers in generating research ideas, refining research questions, explaining complex concepts, summarizing literature, drafting proposals and manuscripts, translating academic texts, supporting statistical programming, and improving academic writing. AI-based literature discovery platforms such as Elicit and ResearchRabbit facilitate systematic literature reviews by employing semantic search, citation mapping, evidence synthesis, and visualization of scholarly networks, enabling researchers to identify relevant studies, influential authors, and emerging research trends more effectively than conventional keyword-based searches. Similarly, AI-enhanced reference management software including Zotero, Mendeley, and EndNote streamline literature organization through automated metadata extraction, citation generation, duplicate detection, and collaborative reference management (Haber et al., 2025). Writing enhancement applications such as Grammarly and QuillBot improve the linguistic quality of academic manuscripts by providing grammar checking, paraphrasing, summarization, vocabulary enhancement, and clarity suggestions, particularly benefiting researchers writing in English as a second language. Furthermore, AI capabilities integrated into statistical and qualitative data analysis software such as IBM SPSS Statistics, R, Python, and NVivo automate data cleaning, coding, predictive modelling, visualization, text mining, sentiment analysis, and interpretation of research findings, thereby reducing analytical complexity and improving research efficiency. Despite these numerous benefits, researchers are advised to critically evaluate AI-generated outputs because these tools may occasionally produce inaccurate information, fabricated references, or biased content that requires human verification (Nsirim, 2025)



Statement of the Problem

Although numerous international studies have examined AI adoption in higher education and academic research, empirical evidence focusing specifically on the utilization of AI tools among Library and Information Science lecturers in Nigerian polytechnics remains limited. Existing studies have largely concentrated on university academics or students, with little attention given to polytechnic lecturers despite their critical role in promoting information literacy and digital scholarship. Moreover, few studies have examined the utilization patterns, perceptions, and challenges associated with AI tools among LIS lecturers in Polytechnic Libraries in Rivers State. Understanding these issues is essential for developing institutional policies, capacity-building programmes, and digital infrastructure that support responsible AI adoption in research. It is against this background that this study investigates the utilization of AI tools for research among Library and Information Science lecturers in Polytechnic Libraries in Rivers State.

Objectives of the Study

1. Identify the AI tools used for research
2. Determine the impact of AI tools in research output of Researchers in polytechnic libraries in Rivers State
3. investigate the perceptions of using AI tools for research among researchers in polytechnic libraries in Rivers
4. Identify the challenges of utilization of AI tools for research

Literature Review

AI Tools Used for Research

Artificial intelligence (AI) has transformed the research landscape by introducing intelligent systems capable of supporting researchers throughout the entire research lifecycle, from idea generation and literature discovery to data analysis, manuscript preparation, and dissemination of findings. AI tools are increasingly being adopted in higher education and research institutions because of their ability to automate repetitive tasks, improve research efficiency, and enhance scholarly productivity. Studies indicate that researchers no longer rely solely on conventional



databases and statistical software but increasingly integrate generative AI, machine learning applications, and AI-powered research assistants into their workflows (Kolade et al, 2026)

One of the most widely used AI tools in research is ChatGPT, developed by OpenAI and employs advanced natural language processing (NLP) to generate human-like responses. (AlZu'bi et al., 2024). It also helps to summarize scholarly articles, explain complex theories, assist with literature reviews, generate research questions, draft manuscripts, improve academic writing, translate texts, generate programming code, and provide statistical guidance. Because of its conversational interface and versatility, ChatGPT has become one of the most widely adopted AI tools among researchers across various disciplines (Bircan et al., 2024). Researchers commonly use it to brainstorm research ideas, identify knowledge gaps, simplify difficult concepts, refine hypotheses, and improve the clarity and coherence of manuscripts before journal submission. However, scholars caution that ChatGPT may produce inaccurate references or fabricated citations (hallucinations), making human verification essential.

Another increasingly popular AI-powered research tool is Consensus, an academic search engine that employs AI to retrieve and synthesize evidence directly from peer-reviewed literature. Rather than generating opinions, Consensus extracts conclusions from scientific publications, allowing researchers to identify evidence-based answers to research questions quickly. Similarly, Elicit automates literature searches by identifying relevant publications, extracting study characteristics, summarizing findings, and comparing research evidence. Elicit significantly reduces the time required for systematic literature reviews and evidence synthesis, particularly in health sciences and social sciences. AI-assisted literature review platforms such as SciSpace, ResearchRabbit, Connected Papers, Litmaps, and Iris.ai have also become valuable tools for researchers. SciSpace helps users understand difficult academic articles by explaining technical terms, summarizing research papers, and answering questions directly from uploaded documents. ResearchRabbit and Connected Papers visualize citation relationships among scholarly works, enabling researchers to discover influential publications and identify emerging research trends. Litmaps assists researchers in monitoring newly published literature related to specific topics, while Iris.ai uses semantic analysis to identify conceptually related research beyond keyword matching. Generally these AI



tools substantially improve literature discovery, organization, and evidence mapping (Nsirim, 2025)

For academic writing, researchers increasingly utilize AI-powered writing assistants such as Grammarly, Paperpal, Trink AI, QuillBot, Jenni AI, and Wordtune. Grammarly uses AI algorithms to improve grammar, punctuation, clarity, vocabulary, and writing style (Raheem et al., 2023). Paperpal is specifically designed for academic writing, providing discipline-specific language suggestions, journal readiness assessment, and manuscript editing support. QuillBot assists researchers through paraphrasing, summarization, and sentence restructuring, while Jenni AI supports content drafting by generating context-aware academic text. Reference management has also been enhanced through AI integration. Traditional reference managers such as Zotero, Mendeley, and EndNote increasingly incorporate AI-powered recommendation systems that suggest relevant literature based on researchers' existing libraries. AI also facilitates citation extraction, duplicate removal, automatic metadata generation, and bibliography formatting according to various citation styles.

Data analysis represents another important application area of AI in research. Researchers can employ machine learning platforms such as TensorFlow, PyTorch, RapidMiner, Orange Data Mining, and KNIME for predictive analytics, classification, clustering, and pattern recognition. Statistical software packages including SPSS, R, Python, Stata, and MATLAB increasingly incorporate AI algorithms that automate model selection, variable importance analysis, anomaly detection, and predictive modeling (Sreekanthaswamy et al., 2025). In qualitative research, AI-assisted software such as NVivo, ATLAS.ti, and MAXQDA now includes machine learning capabilities for automatic coding, thematic analysis, sentiment analysis, and text classification. Collectively, these AI tools support virtually every stage of the research process, including literature identification, evidence synthesis, research design, data collection, analysis, interpretation, manuscript preparation, language editing, reference management, and publication. The rapid expansion of AI-assisted research platforms demonstrates a shift toward intelligent research ecosystems that augment rather than replace human researchers.

Impact of AI Tools on the Research Output of Researchers



The integration of AI into research activities has significantly influenced research productivity, quality, efficiency, and innovation. Existing literature consistently demonstrates that AI tools improve research output by reducing the time required to complete routine tasks while enabling researchers to devote greater attention to critical thinking, interpretation, and scientific innovation (Agunuru, 2025). One of the most frequently reported impacts is increased research efficiency. AI dramatically reduces the time required for literature searches, article screening, summarization, citation management, and manuscript editing. Traditional systematic literature reviews often require several months of manual screening; however, AI-assisted tools automate much of this process, allowing researchers to identify relevant studies more rapidly while maintaining acceptable levels of accuracy. AI-supported literature review systems substantially reduce researcher workload without eliminating the need for expert judgment. AI also enhances the quality of academic writing. Grammar correction, language refinement, readability improvement, and consistency checking contribute to clearer scholarly communication. Researchers whose first language is not English particularly benefit from AI writing assistants because these tools reduce language barriers and improve manuscript quality for international publication.

Another significant impact is enhanced knowledge discovery. AI-powered semantic search engines identify relevant studies beyond simple keyword matching by understanding conceptual relationships among publications (Hasan, 2025). Consequently, researchers are better able to identify research gaps, emerging themes, interdisciplinary connections, and influential studies that may otherwise remain undiscovered. AI contributes substantially to data analysis by processing large datasets more rapidly than conventional analytical methods. Machine learning algorithms identify hidden patterns, predict outcomes, classify observations, and detect anomalies with high efficiency. These capabilities are particularly valuable in biomedical research, environmental sciences, engineering, economics, and social sciences where increasingly complex datasets require advanced analytical approaches. Several empirical studies have found that AI supports increased publication productivity. Despite these benefits, scholars argue that AI should augment rather than replace human expertise. Critical evaluation, methodological rigor, ethical reasoning, interpretation of findings, and scientific creativity remain fundamentally human responsibilities. Consequently, the greatest impact of AI lies in augmenting researchers' capabilities rather than automating scientific inquiry entirely.



Researchers' Perceptions of Using AI Tools for Research

Researchers' perceptions regarding AI use are diverse, reflecting optimism about its benefits alongside concerns regarding research integrity, transparency, and ethical implications. Many researchers may perceive AI as a valuable research assistant capable of improving efficiency, reducing repetitive tasks, and enhancing research productivity (Nathan & Isuaiko, 2025). AI support literature searching, manuscript editing, brainstorming, language improvement, programming support, and statistical assistance (Floris & Renandya, 2025). Furthermore, researchers appreciate AI's ability to simplify complex tasks and reduce administrative burdens associated with scholarly work (Adepoju, 2025). However, perceptions differ across disciplines and career stages. Early-career researchers, postgraduate students, and researchers in technical fields may report greater acceptance and more frequent use of AI than senior academics. Their familiarity with digital technologies and greater willingness to experiment with emerging tools contribute to higher adoption rates. In contrast, senior researchers may express greater caution due to concerns about scientific integrity, transparency, and reliability. Studies also reveal three dominant perspectives toward AI use in research.

Challenges of Utilizing AI Tools for Research

Despite their numerous advantages, AI tools present several challenges that limit their effective utilization in research. One of the widely reported challenge is accuracy and reliability. Generative AI systems may produce incorrect information, fabricated citations, nonexistent references, or misleading interpretations, commonly referred to as hallucinations (Nsirim, 2025). Researchers must therefore verify every AI-generated output against original scholarly sources before incorporating it into academic work. Ethical concerns constitute another major challenge. Issues surrounding plagiarism, authorship, copyright infringement, intellectual property rights, data privacy, and responsible disclosure remain subjects of ongoing debate. Since AI models are trained on existing datasets, they may reproduce historical, linguistic, cultural, or disciplinary biases embedded within their training data (Liu, 2023). Such biases can influence literature retrieval, data interpretation, and generated recommendations. Limited transparency presents another challenge. Many generative AI systems operate as "black boxes," providing limited explanation regarding how conclusions or recommendations are generated. Technical and infrastructural barriers further



restrict AI adoption, particularly in developing countries. Limited internet connectivity, inadequate computing infrastructure, subscription costs for premium AI platforms, and insufficient institutional support reduce access to advanced AI technologies. Many lack the knowledge required to formulate effective prompts, evaluate AI-generated outputs critically, or integrate AI appropriately into research workflows (Kulkarni & Tupsakhare, 2024)

In summary, the literature demonstrates that AI has fundamentally transformed contemporary research by providing intelligent support for literature review, academic writing, data analysis, and research management. AI tools improve efficiency, productivity, and research quality, and researchers generally hold favorable perceptions of their use. However, challenges related to accuracy, ethics, transparency, bias, infrastructure, training, and research integrity underscore the importance of responsible AI adoption. Current evidence therefore suggests that AI should be regarded as an augmentative technology that complements human expertise rather than replacing the intellectual and ethical responsibilities of researchers.

Methodology

This study adopted a descriptive survey research design to investigate the utilization of artificial intelligence (AI) tools for research among researchers. The descriptive survey design was considered appropriate because it enabled the researcher to obtain information on the opinions, experiences, and perceptions of respondents regarding the use of AI tools in research without manipulating any variables. The study was conducted among librarians in polytechnic libraries in Rivers State, Nigeria, who actively engage in academic research. The target population comprised researchers working in these polytechnic libraries which are Captain Elechi Amadi Polytechnic, Rumuola, Port Harcourt, Ken Sarowiwa Polytechnic. Bori and Federal Polytechnic of Oils and Gass, Bonny. A purposive sampling technique was employed to select respondents who met the inclusion criterion of being actively involved in research activities. This sampling technique was considered suitable because it ensured that only respondents with adequate knowledge and practical experience in the use of AI tools for research participated in the study. Data were collected using a researcher-developed structured online questionnaire titled *Utilization of Artificial Intelligence Tools for Research Questionnaire (UAITRQ)*. The questionnaire was designed based on the objectives of the study, The instrument was subjected to face and content



validation by experts in Library and Information Science and Measurement and Evaluation to ensure that the questionnaire adequately measured the variables under investigation. Their observations and suggestions were incorporated into the final version of the instrument before administration. The questionnaire was administered electronically using an online survey platform to facilitate easy access by respondents across the selected institutions. Seventeen (17) completed questionnaires were found valid for analysis. The data collected were analyzed using mean and standard deviation to answer the research questions. A criterion mean of 2.50 was adopted for decision-making. Mean scores of 2.50 and above were interpreted as Agreed, while mean scores below 2.50 were interpreted as Disagreed.

Results and Discussion

Table 1: AI Tools Used for Research by Researchers

Item	Mean	SD	Decision
I use ChatGPT to generate research ideas	3.62	0.58	Agree
I use AI-powered academic search engines (e.g., Elicit, Consensus, SciSpace) to locate scholarly literature.	3.51	0.64	Agree
I use AI writing assistants (e.g., Grammarly) to improve academic writing.	3.74	0.49	Agree
I use AI tools (eg., Mendeley) for citation and reference management during research.	3.18	0.77	Agree
I use AI-powered statistical or data analysis software (SPSS AI powered) in my research.	3.29	0.71	Agree
I use AI tools QuillBot to translate or paraphrase academic content.	3.45	0.68	Agree
I use AI applications throughout different stages of my research process.	3.56	0.61	Agree
Grand Mean	3.48	0.64	Agree

The findings in Table 1 reveal that researchers widely utilize artificial intelligence tools during various stages of the research process, with a grand mean of 3.48, which is above the benchmark of 2.50. The highest-rated item was the use of AI writing assistants such as Grammarly and QuillBot for improving academic writing (Mean = 3.74), suggesting that language enhancement is the most common application of AI among researchers. The findings also indicate substantial utilization of ChatGPT, AI-powered literature search platforms, citation management systems, translation tools, and statistical software. This implies that AI has become an integral component of contemporary research activities.

**Table 2: Impact of AI Tools on Research Output of Researchers**

Item	Mean	SD	Decision
AI tools increase my research productivity.	3.69	0.52	Agree
AI tools reduce the time required to conduct literature reviews.	3.72	0.48	Agree
AI tools improve the quality of my academic writing.	3.66	0.55	Agree
AI tools enhance the accuracy of data analysis.	3.42	0.69	Agree
AI tools help me identify relevant research gaps more effectively.	3.48	0.63	Agree
AI tools improve the quality of manuscripts submitted for publication.	3.59	0.57	Agree
AI tools increase my overall research efficiency.	3.75	0.46	Agree
	Grand Mean	3.62 0.56	Agree

Table 2 indicates that AI tools have a significant positive impact on researchers' research output, with an overall grand mean of 3.62. Respondents particularly agreed that AI increases research efficiency (Mean = 3.75) and reduces the time required for literature reviews (Mean = 3.72). The results further demonstrate that AI contributes to improved manuscript quality, enhanced productivity, better identification of research gaps, and more effective data analysis. These findings suggest that AI technologies substantially improve the quality, speed, and effectiveness of scholarly research.

Table 3: Researchers' Perceptions of the Use of AI Tools for Research

Item	Mean	SD	Decision
AI tools are useful for conducting research.	3.76	0.45	Agree
AI tools make research activities easier to perform.	3.70	0.50	Agree
I am confident in using AI tools during research.	3.41	0.70	Agree
AI tools should complement rather than replace researchers.	3.81	0.43	Agree
I intend to continue using AI tools for future research.	3.67	0.52	Agree
Researchers should receive formal training on AI tools.	3.84	0.41	Agree
AI tools contribute positively to research innovation.	3.58	0.60	Agree
Grand Mean	3.68	0.52	Agree

The results presented in Table 3 show that researchers possess positive perceptions regarding the use of AI tools in research, as evidenced by a grand mean of 3.68. The respondents strongly agreed that researchers should receive formal AI training (Mean = 3.84) and that AI should complement rather than replace researchers (Mean = 3.81). Furthermore, respondents viewed AI as useful, easy to use, supportive of research innovation, and worthy of continued adoption. These findings



indicate widespread acceptance of AI while emphasizing the importance of maintaining human oversight in research activities.

Table 4: Challenges of Utilizing AI Tools for Research

Item	Mean	SD	Decision
AI tools sometimes generate inaccurate or misleading information.	3.58	0.61	Agree
Limited training affects my effective use of AI tools.	3.49	0.69	Agree
Concerns about plagiarism discourage extensive use of AI.	3.33	0.76	Agree
The cost of premium AI tools limits their utilization.	3.54	0.63	Agree
Poor internet connectivity affects my use of AI tools.	3.61	0.59	Agree
Ethical concerns influence my use of AI tools in research.	3.39	0.70	Agree
Lack of institutional policies affects responsible AI utilization.	3.46	0.67	Agree
Grand Mean	3.49	0.66	Agree

Table 4 shows that researchers experience several challenges in utilizing AI tools for research, with a grand mean of 3.49, indicating agreement. The highest-rated challenge was poor internet connectivity (Mean = 3.61), followed closely by concerns about the accuracy of AI-generated information (Mean = 3.58) and the high cost of premium AI tools (Mean = 3.54). Respondents also acknowledged inadequate training, ethical concerns, plagiarism risks, and the absence of institutional AI policies as barriers to effective utilization. The findings suggest that while researchers recognize the benefits of AI, addressing infrastructural, ethical, financial, and institutional challenges is necessary to maximize its effective adoption in research.

Discussion of Findings

The findings of this study revealed that researchers extensively utilize various artificial intelligence (AI) tools throughout the research process. The respondents agreed that they use ChatGPT to generate research ideas, summarize literature, and refine academic writing. They also indicated frequent use of AI-powered academic search engines such as Elicit, Consensus, and SciSpace for literature retrieval, AI writing assistants including Grammarly, QuillBot, and Paperpal for language editing, AI-enabled citation management systems, statistical software, and translation tools. The overall grand mean of 3.48 indicates that AI tools have become an integral part of



contemporary research activities. This finding supports the growing body of literature which suggests that AI has transformed scholarly research by providing intelligent assistance across nearly every stage of the research lifecycle. Studies by Baber et al. (2023) observed that generative AI tools such as ChatGPT have significantly changed how researchers conduct literature reviews, develop research ideas, prepare manuscripts, and analyze research data.

The high utilization of AI writing assistants observed in this study is also consistent with findings by Acosta (2024) who reported that researchers increasingly rely on AI to improve grammar, clarity, coherence, and academic writing quality. Likewise, AI-powered literature search tools have been shown to simplify evidence discovery by identifying relevant studies more efficiently than traditional keyword searches. The present finding therefore demonstrates that researchers are embracing AI technologies as supportive tools that enhance research productivity without replacing human intellectual input.

Impact of AI Tools on the Research Output of Researchers

The findings further revealed that AI tools positively influence researchers' research output. Respondents agreed that AI increases research productivity, improves manuscript quality, enhances literature review, facilitates data analysis, identifies research gaps, and significantly improves overall research efficiency. The grand mean indicates that researchers perceive AI as having a substantial positive impact on the quality and quantity of their scholarly outputs. This finding corroborates previous studies which report that AI enhances research productivity by reducing the time required to complete repetitive research tasks. Celik (2025) found that AI-assisted research tools significantly improve researchers' efficiency and accelerate manuscript preparation and publication processes. The implication of this finding is that AI has become an important productivity-enhancing technology capable of improving research quality, reducing workload, and facilitating timely completion of research projects. However, these benefits can only be maximized when AI-generated outputs are critically evaluated and verified by researchers.

Researchers' Perceptions of the Use of AI Tools for Research

The study established that researchers possess positive perceptions regarding the utilization of AI tools for research. The respondents agreed that AI tools are useful, easy to use, capable of



promoting research innovation, and should continue to be integrated into research activities. They also strongly agreed that AI should complement rather than replace researchers and that formal training should be provided to improve AI competencies. The grand mean indicates a generally favorable attitude toward AI adoption. The present finding agrees with Meduri (2025) that responsible AI use requires human oversight, transparency, and accountability in scholarly work. The respondents' strong support for AI training further suggests that researchers recognize the need to develop AI literacy in order to maximize the benefits of emerging technologies while minimizing associated risks. This finding underscores the importance of institutional capacity-building initiatives aimed at improving researchers' competencies in responsible AI utilization.

Challenges of Utilizing AI Tools for Research

Despite the positive perception and widespread utilization of AI, the study revealed several challenges associated with its use in research. The respondents agreed that AI sometimes produces inaccurate information, that inadequate training limits effective utilization, and that plagiarism concerns, ethical issues, subscription costs, poor internet connectivity, and the absence of institutional AI policies constitute major barriers to AI adoption. The grand mean of 3.49 indicates that these challenges are widely experienced among researchers. This finding is consistent with previous studies that identified hallucination, misinformation, fabricated references, and algorithmic bias as major limitations of generative AI systems. Nsirm (2025) observed that ChatGPT occasionally generates inaccurate citations and misleading information, making human verification indispensable throughout the research process.

Conclusion

The study examined the utilization of artificial intelligence (AI) tools for research among researchers by identifying the AI tools commonly used, assessing their impact on research output, examining researchers' perceptions of AI utilization, and identifying the challenges associated with their use. The findings revealed that researchers extensively utilize AI tools such as ChatGPT, AI-powered literature search platforms, writing assistants, citation management systems, and data analysis software to support various stages of the research process. The study further established that these tools have a positive impact on research productivity by improving literature review, academic writing, data analysis, and overall research efficiency. In addition, the findings showed that researchers generally have positive perceptions toward the use of AI and consider it a valuable technology that enhances research activities when used responsibly. However, the study also



identified several challenges, including concerns about the accuracy of AI-generated information, ethical issues, inadequate training, limited digital infrastructure, and the high cost of premium AI platforms. Based on these findings, the study concludes that artificial intelligence has become an indispensable tool for modern research, significantly enhancing the efficiency and quality of scholarly work. Nevertheless, its effective utilization depends on adequate training, supportive institutional policies, reliable technological infrastructure, and continuous human oversight to ensure responsible, ethical, and accurate application in research. Therefore, AI should be viewed as a complementary tool that strengthens researchers' capabilities rather than replacing their critical thinking, creativity, and professional judgment.

Recommendations

1. Universities and research institutions should provide researchers with institutional access to reputable artificial intelligence tools and organize regular training programmes to enhance their competence in the effective use of AI technologies throughout the research process.
2. Universities and research organizations should integrate AI-assisted research methods into research methodology courses and professional development programmes to enable researchers to maximize the positive impact of AI on research productivity, efficiency, and the quality of scholarly outputs.
3. Higher education institutions should develop comprehensive institutional guidelines and continuous AI literacy programmes to promote positive perceptions, responsible adoption, and ethical utilization of artificial intelligence in research and scholarly publishing.
4. Governments, institutional management, and research funding agencies should improve digital infrastructure, provide affordable access to premium AI platforms, establish clear AI governance policies, and support continuous capacity-building initiatives to address the challenges associated with the utilization of artificial intelligence tools for research.

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