

Exploring Artificial Intelligence (AI) Adoptions in Psychology Research: Opportunities, Challenges and Strategies for Enhancing Effective Integration

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Abstract

Original Research Article

This research explored the opportunities, challenges and strategies for effective AI integration in psychology research practice in Nigeria. The study employed an exploratory survey research design that is qualitative with interpretivist philosophy and inductivist approach. A semi-structured interviews was used for the collection of detailed data. A sample of 24 participants was drawn from the population of 346 academic researchers of psychology within the faculty of social sciences and education of the Nigerian universities. Face-to-face interviews were conducted to generate detailed firsthand information from participants. NVivo 12 Pro was used for data analysis. The findings revealed that the acquisition of new research techniques and possibilities in literature, real-time data collection and analyses using algorithms from ML and NLP technologies were opportunities gained from AI adoption in research practice. The findings indicated that a dearth of AI technical expertise, complexities in using models and interpretability skills among others were the challenges in AI adoption in research. The research further identified efficient data handling, choice of the right AI tool, monitoring and control process, data management efficiency, collaboration with AI experts and transparent application of the AI tools among others, suggested strategies for effective AI integration in research practice. The study concluded that embracing the AI adoption opportunities and seeking educational interventions can help mitigate the utilisation challenges to support their professional research innovation. It is recommended that psychology researchers should acquire the AI technologies knowledge and techniques to enable them overcome existing challenges while increasing the usage opportunities to enhance technological benefits in research practice.

Keywords: Artificial Intelligence, opportunities, challenges, strategies for integration, academic research practice.

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1. Introduction

The traditional methods of collecting primary and secondary datasets for literature review, thematic and statistical analyses were worrisome and cost-driven in academic research domains. Oftentimes, these are

demonstrated with a lack of transparency, inaccuracies and inefficiencies that are linked to poor research outcomes (Ojha, 2024). These research incidents have blocked many academics from gaining contemporary insights and publishing



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dependable researches with credible findings. It also hinders innovative experiences among researchers such that most research conducted by academicians lack high assessment grades to guarantee promotions in the Nigerian university practice. Remarkably, psychologists who are experts in evaluating instruments for data collections and appraising research outcomes similarly demonstrate inaccuracies and lack of analytical efficiencies in their research process. The situation affects literature reviews, content and statistical analyses as well as generalisability of findings. Most psychology researchers observe these deficiencies in the management of data from collection period to analytical process, which hinders dependability of their research outputs (Naseer *et al.*, 2024). These challenges could be linked with lack of technology adoption and integration in the research process.

Giglio and Costa (2023) recognised that the utilisation of conventional research process that support manual data collection from primary to secondary data sources promote long time process without accuracy and efficiency of the research. The conventional practice makes research practice cumbersome and unreliable. As noted by Juang and Tan (2023), manually collection of data for literature review, data analysis and reporting of findings are time-consuming and labour-intensive with minimal achievement. This process accounts for the utilisation of conventional research methods that demonstrate inefficiency in the research process and outputs. Thus, these experiences make many researchers impassable in their professional advancement with publications, while others are reluctant to engage in meaningful research.

Common observations show that many researchers are still facing challenges with a lack of technical expertise and domain technology knowledge, especially with the use of artificial intelligence (AI) in their research. They are lacking in their ability to embrace AI, utilise its models and techniques to enhance data quality toward improving their research findings. Thus, this lack of proficiency in the utilisation and integration of AI technologies in research by many psychology researchers poses a huge challenge that hinders their scientific attitude

towards positive experiences (Annus 2024). This ignorance in AI use promotes human error, bias, and lack of accountability in research procedures to limit expertise contribution, accuracy and reliability of research findings (Giglio & Costa, 2023). Despite the awareness of the fact that technology integration improves research process, yet these sets of researchers are not practically involved. This carelessness poses challenges on them with the experiences of producing defective research outcomes that adversely impact effective AI integration.

Many research studies in recent times have been observed to possess a lack of accurate, transparent and reliable data collection and analytical processes. These ineptness exposes the research to lack of standardisation and adherence to ethics that lead to insufficient insights in outcomes. These questionable methodological diversities mostly compel inconsistent research findings that affects the reliability of such research results. But when technology is integrated in the research process, such gaps would not be observed rather proficiency in the research outputs. Hence, many researchers postulated that the integration of AI enhances the accuracy of data collection, efficiency in reviewing literature, development of hypotheses and conducting analyses that produce resourceful research outcomes (Khalifa & Ibrahim, 2024; Chetwynd 2024; Elitcroft *et al.*, 2024; Kumi *et al.*, 2023).

In Nigeria, many psychology researchers demonstrate ineptitude in the use and adoption of AI in research process. They have no grip of AI integration and utilisation including understanding the roles of programming languages, coding techniques, and algorithm functions. They are not familiar with AI software (python, pytorch), in addition to machine learning, and deep learning practical usages among others. Again, most psychology researchers have no contextual knowledge concerning different electronic data collection tools and techniques supported by AI integration in research. Thus, they are not familiar with AI data collection tools, for example neuroimaging (Functional Magnetic Resonance

Imaging (fMRI), Electroencephalography (EEG), Electrocardiography (ECG) that collect physiological data and other tools which help with psychological data (Gonzalez-Garcia et al., 2023). Many of them do not understand the rationale in which certain tools are used and the purpose of adopting them as well as the type of data each of them helps to collect. These lack of understandings on critical issues on practical research are highly disturbing. Hence, the conundrum of psychology researchers in these aspects of practical research process could associate with lack of complete insights on opportunities and challenges of AI integration. Hence, this study aims to investigate the opportunities, challenges and adopting strategies that can effectively integrate AI in research practice.

2. Specific objectives

The specific objectives of this study are as follows:

- 1) Explore the opportunities and benefits of adopting AI in psychology research for effective integration practice
- 2) Examine how the challenges and concerns for adopting AI in psychology research impact effective integration practice.
- 3) Investigate how the strategies in advancing effective AI integration and utilisation impact psychology research practice.

3. Research Questions

The following specific research questions are posed to guide the study;

1. How are the opportunities and benefits of adopting AI in psychology research impact effective integration practice?
2. How are the challenges and concerns for adopting AI in psychology research impact effective integration practice?

3. What are the strategies in advancing effective AI integration and utilisation in psychology research practice?

4. Literature Review

The concept of Artificial Intelligence (AI) is derived from the idea of developing a machine to imitate the thinking and reasoning similar to that of human beings for achieve a well-organised decision-making. This has undergone several processes of innovative technological development. It is a decade's achievement. Hence, AI was first coined by John McCarthy at Dartmouth College at an innovation conference in 1956. Today, AI awareness, adoption and utilisation have taken prominence in every sphere of endeavour including academic and research. Scholastically, AI is considered an education tool (Serholt et al, 2027; Kaplan & Haenlein, 2019), learning and research tools (Serholt *et al*, 2022; Chubb *et al.*, 2021; Cope et al., 2020). It is a term used to depict approaches to solve data-in-data-out problems that require intelligence when solved by human beings and other organisms, distinct from deep and machine-learning techniques as subsets of AI (Chubb *et al.*, 2021). Basically, within the research domain, AI refers to a digital tool or software that is utilised to enhance research data accuracy, process and outcome through garbage-in-garbage-out data processes.

AI is positioned to extensively revolutionise research processes by enhancing well-organised research outcomes that foster credible innovation. As a leading-edge technology, AI can integrate research facets like literature review, data collection, analysis and findings to produce meaningful outcomes. Over the years, researchers have made great efforts to overcome the hurdles in academic writings and scientific research publishing, yet to no avail. The emergence of AI creates opportunities for significant improvement. It helps in managing research time, facilitates accuracy, efficiency and supports research practices that are sustainable with innovative outcomes. It is acknowledged that AI becomes a writing tool that can transform the research process. It helps researchers develop enhanced literature reviews, formulate hypotheses, perform experiments

in a controlled pattern, analyse and generate reasonable findings. Wang *et al.* (2023) stated that with the aid of AI, comprehensive literature reviews, experiments and texts are professionally generated with sophisticated editing; helping to handle large datasets for diverse analyses and interpret findings while gaining insights that might not be accomplished through traditional research processes.

Derga *et al.* (2023) identified AI research applications that can support various academic fields to guarantee efficient outcomes. The authors enunciated algorithms, natural language processing (NLP), computer vision (CV), machine learning (ML), robotic and automated systems (RAS), and neural network (NN) among others as those applications. From the insights of Derga and his colleagues, these tools enable AI to function effectively and produce the needed expected function of intelligence. For example, algorithms are the spines of AI applications given that they facilitate machines data processing, making performance decisions through coding of instructions.

Researchers reported a synopsis of various AI tools for writing and outlining bibliographies such as EndNote, Mendeley and Zotero; and data analysis and visualisation like r-packages and python libraries (Hamoda *et al.* 2025; Filetti *et al.*, 2024). Notably, Ojha (2024) stated that AI integration generates many opportunities and benefits for researchers and the contents under investigation toward the improvement of research practices. Studies identified a myriad of opportunities and benefits of AI integration in research as enhancement of efficiency, accuracy and scope in literature reviews, data analysis and innovative outcomes (Khalifa & Albadawy, 2024; Ojha, 2024). Kumi *et al.* (2023) expressed that effective adoption of AI in the research process streamlined tasks and workflow, enhanced collaboration, decision making, productivity and improved research outcomes. These beneficial technological strategies in the research process would guarantee the review of literature with knowledge synthesis by automatically scanning and extracting relevant data from a variety of scientific papers (Naseer *et al.*, 2024).

The integration of AI in research practice creates more opportunities and benefits to the practitioners and stakeholders in the academic world as well as other contributors to valuable knowledge. This is not unconnected to improving literature review, enhancing data collection and analysis for valuable research results. It also influences writers in streamlining the designs of experiments, accelerating scientific discoveries, and promoting transparency and ethical dignity of the research and its discoveries. For example, Lee and Choi (2023) advocated that the use of ChatGPT for various research tasks (generating custom chatbots, summarising information and assisting in creating quality research questions) can enhance efficiency in the research outcomes. Remarkably, 'perplexity' AI helps researchers to verify information (Ghorashi *et al.*, 2023), and 'cloud' AI facilitates record upload and question responses to analyse large datasets and literature efficiently (Dergaa *et al.*, 2023; Sharma *et al.*, 2023). Yet, 'scite' AI helps researchers recognise the latest publications and understand the context in which to be cited (Naseer *et al.*, 2024).

Since, AI makes data analysis simple and efficient by offering assistance to researchers, leveraging algorithms that can process huge volumes of data swiftly and gain high repute in the research process, such ingenuity should be adopted for efficient practice. According to Ojha (2024), AI adoption offers a sound reputation for research practice through professionalism to guarantee efficient research outcomes. This is evidenced by the outstanding opportunities and benefits of AI through the activities of revolutionising the educational system, research practices and knowledge. Of course, AI has not operated without challenges and concerns, and these surmountable factors can clear doubts and promote accountability in the research practice.

It is postulated that the use of AI presents concerns about how its utilisation in peer review initiates bias (Checco *et al.*, 2021). Hence, these concerns ignore nuance and disclosure within the analytical subjects (Beer 2019). Accordingly, how the structures developed for AI in research (research management) could manage the surveillance and algorithms that

are mostly facing challenges (Beer, 2017; Williamson 2015). Accordingly, challenges and concerns associated with AI adoption in research matter ranging from data quality, availability and bias, expertise and integration, ethical and societal considerations, finance, over-reliance phobia, and organisational resistance to unpredictable power supply (Hamoda *et al.* 2025; Naseer *et al.*, 2024). These indices may affect efficient research practices and professionalism of the researcher in accomplishing the expected research goals as well as solving the problems under investigation. Yet, Goland *et al.* (2023) reported that accepting the opportunities and overcoming the challenges in the integration of AI can enhance well-organised research outcomes.

However, professionalism in research practices is central to making efficient research outcomes in compliance with methodological procedures and achieving research integrity. Generally, academic research shapes educational prospects and its practices promote innovations in all areas of human endeavours (Welcome 2020). Academic research also informs teaching and identifies new expanses of knowledge and experiences (Ashwin *et al.*, 2020), especially when it is conducted with assistive technology including AI. Thus, the experiences and discoveries would practically be fulfilling, leading to the efficient closure of the gaps within the context of existing knowledge. Besides, when research is conducted with AI applications without efficient manipulative skills by the researcher, obstacles leading to data limitations and other unexpected setbacks surface. A study by Ramsay *et al.* (2025) found the relationship between academic research challenges and the lack of technology competence associated with researchers' level of information literacy.

Inadvertently, many researchers before the advent of technology and its advancement did not quickly understand the dynamism in knowledge contributions within their fields of endeavour. Before the advent of technologies, most of the researchers' writings were not in compliance with guidelines and standards, which inhibited their chances of publication. Researchers were facing research

difficulties in the review of literature, data collection and conducting analyses with the most complex statistical tools. Kummi *et al.* (2023) established that the use of AI resolves the enigma of inaccuracies in research datasets, data collection and analysis inefficiencies. Procker *et al.* (2020) and the Royal Society (2019) have ascertained the potential of AI in disrupting researchers and conventions, professing clear future challenges in advance. Khalifa and Ibrahim (2024) reported a significant role of AI in research by appending a certain degree of complexities targeting routines and the academics rooted in its practices (Chetwynd (2024). Accordingly, the challenges and problems in integrating AI technologies and techniques need strategies that can influence their effective integration in academic research practices. These approaches are parts of the worries which this research intend to douse as evidence in closing the knowledge gap in this study.

5. Methodology

This research adopted an exploratory design that permitted the investigation of the nature of the problems under exploration. Given that the knowledge, understanding and application of AI in research are not effectively permeated or integrated among academics in Nigerian universities. Hence, exploratory research design enabled in-depth data collection from the participants through semi-structured interviews with open-ended questions that helped to generate first-hand information (Saunders *et al.*, 2019; Falaye 2018). This design is supported by interpretivist research philosophy (Martens, 2018), an inductivist research approach (Niglas, 2019) and qualitative research method (Bristow & Saunders, 2019). Hence, the researcher developed a semi-structured interview with open-ended questions to collect detailed and first-hand information from the participants. These research processes supported the qualitative data analysis with a thematic tool that offered this study an innovative research outcome. The instrument was exposed to research experts in Psychology and Educational Evaluation within the Faculty of Education, Uniuyo and Unical for content and face validation. These experts unanimously

ascertained the validity (internally) of the instrument as required in qualitative research. They collectively affirmed the instrument's usability in collecting data for this study. The interviews were conducted on 24 lecturers of the federal universities (Uyo (14) and Calabar (10) respectively). The sample frame and participants' descriptions are presented in Table 1. The sample was purposefully drawn from 348 populations of lecturers using the Faculty of Social Sciences of each university (Staff Enrolment of Uniuyo and Unical, 2025). This is in support of Bryman and Bell's (2020) conclusion that a qualitative sample could be between 16 and 32 in order to reach the point of saturation to exhaust responses, since fresh information enlightens novel intelligence that seeks new knowledge. The researcher used a phone to record the interview responses from the participants, which helped to track accurate answers to open-ended questions asked. However, a thematic analytical tool was adopted to analyse the data. The coding,

organisation and automatic transformation of the research themes were organised in the NVivo 12 Pro.

Thus, the inclusion criteria allowed only participants who utilised AI technologies and techniques in their research to participate in the data collection while others were automatically excluded from the study sample. This guaranteed the validity to accommodate transferability (external validity), credibility (internal validity) and dependability (reliability) indices in qualitative research (Bryman & Bell, 2020). The measures permitted the integration of experts' experiences through participation in supplying information needed from diverse fields such as sociology, economics, and education among others. These data types promote the credibility of the research themes to achieve efficient triangulation in the research process. In comparison, the exhaustiveness of the responses by participants' repeated ideas revealed the achievement of saturation in the data collection process.

Table 1: Sample frame and participants' characteristic description

Participants' Code	Description	Designation	Years of Experience
Unical_L001	University of Calabar Lecturer	Senior Lecturer	17
Unical_L002	University of Calabar Lecturer	Associate Professor	23
Unical_L003	University of Calabar Lecturer	Lecturer I	20
Unical_L004	University of Calabar Lecturer	Senior Lecturer	20
Unical_L005	University of Calabar Lecturer	Lecturer II	5
Unical_L006	University of Calabar Lecturer	Associate Professor	19
Unical_L007	University of Calabar Lecturer	Professor	28
Unical_L008	University of Calabar Lecturer	Professor	26
Unical_L009	University of Calabar Lecturer	Lecturer I	21
Unical_L0010	University of Calabar Lecturer	Senior Lecturer	17

Uniuyo-L0011	University of Uyo Lecturer	Associate Professor	23
Uniuyo-L0012	University of Uyo Lecturer	Associate Professor	23
Uniuyo-L0013	University of Uyo Lecturer	Lecturer I	20
Uniuyo-L0014	University of Uyo Lecturer	Senior Lecturer	23
Uniuyo-L0015	University of Uyo Lecturer	Lecturer II	5
Uniuyo-L0016	University of Uyo Lecturer	Associate Professor	22
Uniuyo-L0017	University of Uyo Lecturer	Professor	30
Uniuyo-L0018	University of Uyo Lecturer	Professor	26
Uniuyo-L0019	University of Uyo Lecturer	Lecturer I	23
Uniuyo-L0020	University of Uyo Lecturer	Senior Lecturer	17
Uniuyo-L0021	University of Uyo Lecturer	Associate Professor	23
Uniuyo-L0022	University of Uyo Lecturer	Lecturer I	22
Uniuyo-L0023	University of Uyo Lecturer	Senior Lecturer	21
Uniuyo-L0024	University of Uyo Lecturer	Lecturer II	8

Source: The Researcher's compilation (2025)

6. Findings

The findings of this study were derived from the face-to-face semi-structured interviews with participants through thematic analysis. The principal themes were automatically generated through NVivo guided by the research questions. The themes identified include AI adoption in research, opportunities and benefits, challenges and concerns, and effective AI integration strategies to promote research practice. These themes were further transformed to provide answers to the research questions from 5.1 to 5.3. Hence, each of the research

questions was answered based on findings from the participants' interview responses in 5.1.1, 5.2.1 and 5.3.1 respectively.

6.1 Research Question 1

How are the opportunities and benefits of AI adoption in research impact effective integration in psychology domain?

Three interview questions were derived from this research question, which helped to generate a theme in 5.1.1 below.

6.1.1 Opportunities and benefits of AI adoption in research



Figure 1 Word analysis of opportunities and benefits of AI adoption in research

Source: The Researcher's analysis (2025)

From the theme in 5.1.1, the Interview question 1 was derived thus,

Using your knowledge, how do you explain the concept of AI adoption in research?

A handful of 16 participants representing 65% aligned their concept of AI adoption in research explanations as the engagement of AI technologies like machine learning and natural language processing into the research practices to accomplish accuracy, efficiency and innovation. They further agreed that this accuracy, productivity and modernism will be achieved through the quality of literature review, transparency in data collection and analysis that guarantee innovative research outcomes.

One of the participants who is a senior lecturer stated that,

"...involves the use of AI methods and techniques to analyse multifaceted datasets and generate insights that enlighten research findings from the activities of identifying patterns" (Uniuyo-L0025).

A total of 6 participants representing 25% have settled that the concept of AI adoption in research is the utilisation of AI platforms to computerise tasks, restructure workflow and facilitate partnership among researchers.

One of the participants explained that,

"...I see it as the use of AI tools to transform traditional research processes by supporting researchers solve complex research problems, explore new problems and generate findings that are impactful" (Unical-L008).

The information gathered from the participants revealed that the concept of AI adoption in research portrays an application of AI tools (ML and NLP) and techniques to compute complex research tasks that affect data collection, literature review, and analysis toward generating intelligent research outcomes. The participants' understanding exposed that AI adoption is capable of creating opportunities and benefits for researchers and the research process, which enabled a related question;

In your opinion, what are the opportunities and benefits of adopting AI in research practices?

A complete 12 participants representing 48% of the participants were unanimous that task automation on data collection, literature review, and engaging algorithms for analysis are the innovative opportunities AI adoption creates in research practices. The participants added that AI adoption can unlock effective time management and opportunities. It can support research tasks' priorities and increase productivity for the benefit of the researcher and the research process.

A range of 8 participants representing 33% of the total sample agreed that AI adoption creates opportunities and benefits towards guaranteeing efficiency in the research process while creating new possibilities and dimensions for researchers to explore.

“My opinion is that it creates chances for researchers to gain innovative knowledge in adopting better methodologies” (Unical-L001).

“...open ways for researchers to improve knowledge sharing, collaborations and consolidate confidence in research outcomes” (Uniuyo-L0014).

“I see that AI adoption opens prospects for personalised research supports and improved accuracies in research procedures to guarantee efficient research outputs” (Uniuyo-L0012).

“My opinion as a professor is that the integration of AI in research creates opportunities to experiment with new research methodologies and using machine learning algorithms for analysing data helps to discover new insights” (Unical-L008).

“...enabling proactive research planning, promoting collaboration and interdisciplinary research agenda” (Unical-L001)

“...drive innovation and creativity” (Uniuyo-L0012, L0015, L0019).

Participants acknowledged that the opportunities and benefits of adopting AI in research practice include practising computer-aided literature review, data collection and analysis to achieve value with time management, accuracy, and efficiency of the research outputs. These personalised research supports and improvements in research practice enabled collaborations and interdisciplinary research agendas as well as discovering new insights.

From your experiences, how do these opportunities and benefits of AI adoption impact effective integration in research practice?

Responses from 20 participants, representing 83% align with their thought that opportunities and benefits of AI adoption impact effective integration in research practice positively. According to the participants, they facilitate better research quality, improve collaborations among researchers and institutions, upgrade researchers' experiences in achieving new research technicalities, and improve their data management quality.

One of the participants from the unified knowledge asserted that,

“I confidently observed that opportunities and benefits of AI adoption make researchers organise literature review faster, reduce human error, and accelerate discoveries through large datasets analysis handling” (Unical-L0010).

“With AI adoption, researchers can achieve credibility and transparent research practice” (Uniuyo-L001).

“...make research practice reliable and robust” (Uniuyo-L0016).

“...guarantee a well-defined research question and measurable objectives with a suitable statistical tool for

In your knowledge, what strategies do you think can be employed to promote effective AI integration and utilisation in research practice?

All participants of 8, representing 36% of the complete sample have resolved that the choice of the right AI tools and techniques, determination of efficient data management quality, prioritising transparency and emphasising accountability in AI-powered research are strategies that could effectively integrate AI and enable its utilisation in research practice.

One of the participants stated,

“Clear definition of research questions development is a significant strategy to promote effective AI adoption and use in research practice” (Uniuyo-L0022).

A total of 4 participants representing 15% of the total sample were in consensus that monitoring and evaluation of the AI integration process to observe key improvement and implementation of the needed changes are tactical means to be employed in promoting effective AI adoption and utilisation in research practice.

Other participants suggested that,

“...developing AI literacy programme for researchers to align with the research practice” (Uniuyo-L0019).

“...identifying the correct or right AI technologies and techniques can support strategic and effective AI integration and utilisation in research practice” (Uniuyo-L0013).

“...provision of training and development opportunities can be employed to promote effective AI integration and utilisation in research practice” (Unical-L009).

“...effective collaborations with AI experts can promote AI adoption and utilisation effectiveness in research practice” (Unical-L008).

“... assure with data quality and integrity” (Uniuyo-L0011).

“...foster opportunity to implement transparent and explainable AI tools” (Uniuyo-L0024).

“Fostering a culture of AI utilisation that supports interdisciplinary collaboration” (Uniuyo-L0017).

7. Discussions

The discussions of this research are derived from the findings and guided by each theme created in 5.1.1 to 5.3.1 respectively.

7.1.1 Opportunities and benefits of AI adoption in research

The findings of this research recognised the understanding of the concept of AI adoption in research practice as the fundamental means of informing the generalisability of the study outcomes. From the participants' viewpoints, the concept of AI adoption focused on the application of AI tools, technologies or mechanisms and techniques that enable the computation of complex research tasks to achieving reasonable research outcomes. These AI adoption activities were observed to be associated with research data collection, literature reviews, and analysis of data to realise enhanced research outputs. It is not unconnected to personalised research supports that enhance efficiency and accuracy in the research practices. This finding is associated with the findings of Ojha (2024) and Naseer et al. (2024), which agreed that the adoption of AI tools contributes to achieving enhanced literature review, data collection and analysis, and accelerates scientific discoveries. Ojha (2024) added that such a research process improves research writing and streamlines the design of experiments to promote transparency and ethical dignity of the research process.

The findings of this study also indicated that developing computerised-supported literature

reviews, data collection and analyses with valued time management, accuracy and achieving efficiency of the research outputs are opportunities and gains of adopting AI in research practices. In addressing the research question of this study, findings from the participants exposed that the extent to which opportunities and benefits of AI adoption impact effective integration in research practice is positive and substantial. This finding was generated from interview responses of the research participants, which offered that better research quality, improved collaborations among researchers and institutions are the opportunities and benefits of adopting AI in research. The findings also established that upgrading researchers' experiences helped in achieving new research technicalities, and data quality management improvement, and reliable research are the opportunities and benefits of AI adoption in research practices. The findings of this study suggested that efficient handling of large volumes of data with minimal human error, credibility and robustness, well-organised research questions and improved measurable research objectives are benefits and opportunities of AI adoption for effective integration in research practice. These findings are corroborated by the findings of Khalifa and Albadawy (2024), which affirmed these opportunities to guarantee innovative research outcomes.

This suggests that AI supervises research processes to ascertain its controls and management through algorithms towards guaranteeing efficiency and high productivity. This finding is aligned with the finding by Goland *et al.* (2023), which reported that utilising these opportunities and benefits can foster better strategies to integrate AI in research and achieve better outcomes. Because AI is successfully transforming the world, its integration in research practices as an enabler creates new methods, processes, management and evaluation in its practical wisdom of operations (UKRI 2021; Cyranoki 2019). Other researchers contributed in line with the findings of this study as in: AI contributes to researcher efficiency in research practices and productivity (Beer, 2019). AI hypothetically alleviates researchers and establishments from repetitive tasks (AJE, 2018);

and disputably enhances speed within the realms of practice. The deployment of AI techniques in research practice guarantees expectations by giving credence to increased productivity, impact and interdisciplinary connections (Chubb *et al.*, 2021).

7.2.1 Challenges and concerns of AI integration effectiveness impact research practice

The findings of this research revealed that inability to possess technical expertise, model complexity and interpretability pose challenges and concerns to the AI adoption in research practice. The finding indicated a dearth of data quality and availability as a technical challenge of AI adoption in research. A lack of AI software training and development is another aspect of the challenges and concerns that AI adoption has experienced in research practice. From the participants' opinions, bias, inability to demonstrate fairness, accountability and transparency in the research process are the challenges and concerns that AI integration is targeting to resolve in the research practice. Accordingly, findings of this study established that paucity of security and privacy are the ethical concerns that pose challenges and problems to AI integration in research practice. The findings revealed a lack of data quality and availability, model complexity and interpretability as the challenges and concerns which many researchers bombarded with in the research process. These shreds of evidence have aligned with the findings by Khalifa and Ibrahim (2024), which established that these issues are capable of limiting the effective integration of AI in research practice.

The findings of this study indicated that the extent to which lack of fairness and accountability, and bias in the adoption of AI technologies reduce trust are the challenges and problems of effective integration in the research practice. The findings of this study are in congruence with the findings by Kummi *et al.* (2023), which established that the utilisation and integration of AI in research practice resolves the enigma of inaccuracies in research datasets, data collection and analysis inefficiencies. This suggests that the integration of AI could positively impacts the research practice by enhancing fairness,

accountability and transparency. The findings revealed a lack of data quality and availability, model complexity and interpretability as the challenges and concerns of AI integration. Thus, these issues are capable of limiting the effective integration of AI in research practice. This finding is not unconnected with the uncertainty in methodological research procedures that reduces the integrity of data and efficient utilisation of analytical tools to create complexity in the research process. This complexity that creates difficulty for the integration of AI in research can negatively affect the potential credibility of the research outcomes.

This finding is supported by the findings of Checco *et al.* (2021), which revealed that uncertainty in methodological research procedures that reduces the integrity of data and efficient utilisation of analytical tools to create complexity in the research process are part of the challenges and concerns in adopting AI in research process. These challenges and concerns promote negative impact on the researcher experiences and the research outcomes. The findings of this study associated with the finding by Procker *et al.* (2020) and the Royal Society (2019) who have ascertained the potential of AI in disrupting researchers' experiences and conventions are professing clear future challenges in advance. Thus, Khalifa and Ibrahim (2024) reported a significant role of AI in research by appending a certain degree of complexities targeting routines and the academics rooted in its practices (Chetwynd (2024). These shreds of evidence supported that the use of AI presents concerns about how its utilisation in peer review initiates bias (Checco *et al.*, 2021). Hence, these concerns ignore nuance and disclosure within the analytical subjects (Beer 2019).

Accordingly, how the structures developed for AI in research (research management) could manage the surveillance and algorithms that are mostly facing challenges (Beer, 2017; Wiliamson 2015). The challenges and concerns associated with AI adoption in research matter ranging from data quality, availability and bias, expertise and integration, ethical and societal considerations, finance, overreliance phobia, and organisational resistance to unpredictable power supply (Hamoda *et al.* 2025;

Naseer *et al.*, 2024). These indices expose the relevance of AI in affecting efficient psychology research practices and professionalism of the researcher in accomplishing the expected research goals as well as solving the problems under investigation. Accordingly, Goland *et al.* (2023) reported that accepting the opportunities and overcoming the challenges in the integration of AI can enhance well-organised research outcomes.

7.3.1 Effective strategies of AI integration and utilisation in research practice

The findings of this research established that choosing the right AI tools and techniques, determining efficient data management quality, prioritising transparency and accountability in AI-powered research are the strategies to promote effective AI integration in research practice. The findings of this research showed that the development of a clear definition of research questions, a literary AI programme for researchers and training and development opportunities are diverse strategies that can promote effective AI integration and use in research practice.

Again, the findings displayed that monitoring and evaluation of the AI integration process, observation of key improvements and implementation of the needed changes are strategies that can promote effective AI integration and utilisation in research practice. This finding is in support of the finding by Cyranoki (2019), which established that effective integration and application of AI in research practice create new research processes, management and evaluation efficiency. Beer (2019) added that effective strategies of AI integration and utilisation in research practice promote research and researcher efficiency and high productivity.

This study found that offering training and development opportunities for researchers in AI is one of the strategies that can enhance effective integration and utilisation in research practice. Accordingly, the findings of this study indicated that assuring data quality and integrity, collaboration with AI experts and fostering an atmosphere with AI utilisation supporting interdisciplinary

collaborations can promote effective integration in research practice. This finding supports the finding by Chubb *et al.* (2021), which revealed that interdisciplinary connections, increased productivity and efficient research outcomes could be achieved through effective AI integration and utilisation.

8. Conclusion

This study explored the opportunities and challenges of AI adoption in academic research practice and their impacts on effective integration in Nigeria. The study investigated AI adoption strategies that could promote effective integration in research practice. The findings from the qualitative analysis indicated that AI adoptions in research enhance higher knowledge, and upgrade intelligence to handle complex research procedures and learn new research possibilities. The experiences can promote knowledge sharing and create opportunities for experts' collaborations, enhance innovation and creativity in the conduct of research which positively impact effective integration. However, addressing issues of bias and overcoming lack of data quality and availability, model complexity and interpretability challenges among others were highlighted. Hence, it was stated that if these challenges and concerns are efficiently surmounted, effective AI integration would be guaranteed. Thus, choosing the right AI technologies and techniques, training and development, quality management of data in use and prioritising openness and accountability are efficient strategies that can boost effective AI integration. Hence, this study is recommended as follows:

- 1) Researchers and academic communities in Nigeria should explore the opportunities and benefits of AI tools to achieve effective integration and utilisation in their research practices. This would facilitate efforts towards gaining enhanced data quality, insight into the research process and generating efficient research outcomes.
- 2) Academic researchers should endeavour to overcome the challenges and concerns of AI adoption in the research process by

demonstrating trust and accountability in their integration and utilisation efforts to achieve effective integration towards improving research quality and practice.

- 3) Researchers and academic communities in Nigeria should engage in an AI training and mentorship programme to align themselves with the use of AI technologies and techniques to explore the opportunities and benefits of AI towards improving their research outcomes. This knowledge would meaningfully support their integration efforts and provide them opportunities to achieve a transparent research process with assurances of data quality and integrity of their research practices.

9. References

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