Adoption and Use of Artificial Intelligence Technology for Newsgathering and Reporting among Print Journalists in Selected States in North Central Nigeria

Chris, Oge Kalu

Department of Mass Communication, Nasarawa State University, Keffi, Nigeria
Email: chrisogekalu.cok@gmail.com

Abstract

Artificial Intelligence (AI) has gained widespread use across industries, streamlining processes and enhancing productivity. The field of journalism has not escaped the transformative impact of AI, which has proven beneficial in automating tasks and expediting results across various media platforms. This study, therefore, evaluates the adoption and use of AI for journalism practice among print journalists in Kogi, Nasarawa, Plateau, Benue, Kwara States and the Federal Capital Territory, Abuja, Nigeria. The Technological Determinism Theory was utilized. Using a survey research approach, data were collected from 168 journalists. The study applied an online questionnaire. Results indicated that AI is already playing a key role in automating journalistic processes, aiding reporters in investigative reporting, fact-checking, and creating personalized user experiences. However, the study revealed a limited integration of AI among the respondents. The study further established the challenges hindering AI adoption among the journalists to include insufficient infrastructure, funding constraints for acquiring and maintaining AI compliant devices, and a lack of consistent electricity supply. Additionally, issues such as the cost of internet connectivity and shortage of expertise in AI handling were identified as barriers. The study also highlighted difficulties in implementing AI, including a lack of high-quality data, ethical concerns, potential declines in creativity, oversight and transparency issues, and the unpredictable nature of AI effects. The study concluded that professional journalism is not under threat from AI. Nigerian journalists stand to gain significant benefits from embracing AI, prompting recommendations for newsrooms to prepare for adoption. The study suggested updating curricula in media schools to equip journalists with the necessary skills to navigate emerging technologies like AI as well as in-house trainings to bring journalists up to pace with current AI trends.

Keywords: Artificial Intelligence (AI), Journalism Practice, Adoption, Challenges

Introduction

The origin of Artificial Intelligence (AI), which spans many generations, is extensive and interesting. The idea of using machines to mimic human intelligence was first investigated by computer scientists in the 1940s, which was when AI first emerged (Dhiman, 2023). Developing algorithms and programs that could carry out basic tasks, like playing chess or solving mathematical puzzles, was the main goal of early AI research (Abebe & Goldner, 2018; Barocas & Selbst, 2016; Abbott, 2001). This type of AI was referred to as "rule-based" because it required humans to program the rules that the machines would abide by. Researchers started looking into more sophisticated AI applications, like "machine learning" and "neutral networks", in the 1950s and 1960s (Okiyi & Nsude, 2019). These methods freed machines from the need to follow pre-programmed rules and let them learn from data.

As researchers started to create increasingly complex algorithms and methodologies, interest in AI increased dramatically in the 1970s and 1980s (Clark, 2015). Further, AI saw increased popularity in the 1990s and 2002s due to developments in computing power and the accessibility of enormous amounts of data. As a result, "deep learning" methods were developed and applied to build robust AI systems that can recognize speech and images, play games, and even operate automobiles (Castells, 2012).

Artificial Intelligence is a field within computer science that strives to develop intelligent machines capable of carrying out tasks that typically necessitate human intelligence. As stated by Nahal in Okiyi and Nsude's research (2019), AI is projected to be the primary catalyst for technological advancements in the coming decade. Subsequently, numerous creative industries will experience varying degrees of automation through AI, as their value chains operate in a similar manner. Guanah, Obi and Ginikachukwu (2020) cite Ladi Ojora, who defines AI as the process of empowering computer systems to learn and make decisions independently, without reliance on the programmer or the system that created it. This definition implies that AI functions as a system capable of making autonomous decisions, performing tasks that imitate human intelligence, such as problem-solving, language comprehension, and sound object recognition (Nnamdi & Nwanyanwu, 2021).

Journalism encompasses a wide range of activities, including the collection, sorting, writing, announcement, compilation, editing, and dissemination of information on various mass media platforms such as radio, newspaper, television, magazine, billboard, Internet, among others. The primary purpose of journalism is to provide information that meets the diverse needs of different audiences. Hasan (2014) opines that, journalism practice is essentially a form of communication that revolves around asking fundamental questions such as Who? What? How? Where? When? Why? The scholar went ahead to assert that journalism practice has to do with any activity that contributes to gathering, selection, and processing of news and current affairs for various media organizations. It is the act of gathering, processing and writing stories for public consumption through newspapers, radio, magazines, Internet and television (IGI Global, 2024).

Today, AI is everywhere, and it has affected individuals, societies and professions. The field of journalism is one among others that have benefitted from the initiative of AI. In Spain, Lara-González, José and Félix (2022) established through a study on the use of AI by media houses in Spain that AI technology was applied in trend forecasting, decision making, content generation, processing large volume of data, aiding in trend analysis, combating misinformation, and providing support to journalists by freeing them from mundane tasks, allowing them to focus on research.

Similarly, in USA, UK and Germany, Noain-Sánchez (2022) stated AI was playing significant role in journalism practice such as greater efficiency by producing more content with fewer human resources and automated content production and personalised distribution.
South African journalists also use AI tools for tasks like transcription, research, idea generation and fact-checking (South African National Editors' Forum, 2025). The Editors' Forum also identified the challenges of the application of AI in journalism practice to include cost, language barrier, and resistance to use of AI by some journalists, ethical issues and fear of replacement.
Observation has also revealed AI is being used by Nigeria journalists. However, Guanah and Agbanu (2022) stated in a study that while AI adoption is still in its early stages among journalists in Nigeria, AI do assist Nigerian media practitioners to have access to unlimited journalistic

resources. The application of AI is, however, being challenged with time constraints, misinformation and reducing creativity (Guanah & Agbanu, 2022). Addressing the issue of misinformation, AI can be employed for fact-checking and identifying potential sources of misinformation (Okoye et al., 2021).

However, one significant question to put forward is, how has AI impacted journalism practice amon*g* print media journalists in Kogi, Nasarawa, Plateau, Benue, Kwara States and the Federal Capital Territory, Abuja, Nigeria? Another is, what are the challenges confronting the use of AI amon*g* these categories of journalists in Nigeria? Thus, the focus of this research is to assess the adoption and use of artificial intelligence technology for newsgathering and reporting among print journalists in the North Central Nigeria.

Statement of the Problem

The literature that has already been written on this subject emphasizes the need for more study to determine the effects of implementing AI in journalism in Nigeria and elsewhere, the difficulties that arise, and the best course of action (Dhiman, 2023; Ogola, 2023; Canavilhas, 2022; Udoh, Nsude & Oyeleke, 2022; Kioko, Brooker, Chege & Kimweli, 2022; St-Germain & White, 2021; Nnamdi & Nwanyanwu, 2021; Parratt-Fernández, Mayoral-Sánchez & Mera-Fernández, 2021; Kim, 2019; Okiyi & Nsude, 2019; Iyinolakan, n.d). This entails learning how journalists view artificial intelligence and investigating workable methods for incorporating AI into Nigerian news reporting. Media professionals need to embrace new technologies and understand the various ways that data journalism and artificial intelligence (AI) can be used to amplify a story and achieve desired effects. AI is becoming more and more integrated into journalism.

Even with the possible advantages, there are ethical questions about using AI in journalism. These include transparency and accountability in AI algorithms and processes, potential biases and unfairness in reporting due to biases reflected in data, and job displacement in the news industry as certain tasks become automated (Okoye *et al*., 2021). Addressing these concerns requires a balanced approach that embraces the technology's potential while ensuring responsible AI practices.

AI presents both challenges and opportunities for Nigerian mass media. By carefully considering the ethical implications and implementing responsible AI practices, Nigerian journalists can harness the power of AI to enhance news gathering and reporting, improve the quality of journalism, and better serve the public interest. The use and application of artificial intelligence in gathering and reporting in Nigerian broad communications is a subject that has acquired consideration lately.

Despite the developing growth of artificial intelligence around the world, its application to editorial practice in Nigeria is as yet restricted because of different elements. The effect of embracing this in news coverage in Nigeria is viewed as a stunning development that is changing the stories on how news is accumulated, altered, and revealed by writers. The utilization of computerized reasoning in news assembling and detailing in Nigerian broad communications is a subject that has acquired consideration lately (Talabi *et al,* 2023).

Within the Nigerian media landscape, there is a clear knowledge vacuum regarding how much AI has been incorporated by print media outlets into their news-gathering procedures. Therefore, the concern of this study is to add to the existing literature but with a different focus on the adoption

and use of artificial intelligence technology for newsgathering and reporting among print journalists in select states in North Central Nigeria.

Objectives of the Study

The broad objective of the study is to assess the adoption and use of artificial intelligence technology for newsgathering and reporting among print journalists in North Central Nigeria.

The specific objectives include to:

i. Find out if print journalists in select states in North-central Nigeria make use AI for their practice.
ii. Examine the types of AI tools that journalists in select states in North-central Nigeria use for newsgathering and reporting.
iii. Determine the extent of AI adoption for newsgathering and reporting among journalists in select states in North-central Nigeria.
iv. Assess the impact of AI on newsgathering and reporting among journalists in select states in North-central Nigeria.
v. Explore (or investigate) the challenges of AI adoption for newsgathering and reporting among journalists in select states in North-central Nigeria.

Empirical Review on the Application and Challenges of AI for Journalism Practice

Several studies on the use and challenges of AI in journalism practice have been conducted across the globe. Through the deployment of the qualitative research design, Lara-González, José and Félix (2022) investigated the "Implementation of Artificial Intelligence in the Spanish media: Analysis of the professionals' perceptions". The researchers collected data from 21 media professionals in different Spanish media establishments. Data from the study showed that to a large extent, the media organizations use AI in carrying out their assignments. They use AI basically in experimental projects related to trend forecasting, decision making, content generation, and the development of tools to support journalistic work. Findings also revealed that in the near future, AI will play vital role in processing large volume of data, aiding in trend analysis, combating misinformation, and providing support to journalists by freeing them from mundane tasks, allowing them to focus on research.

The focus of Kim (2019) research was on "AI in Journalism: Creating an Ethical Framework". The study was conducted in North Korea. Interview method was adopted, and a number of 12 participants took part in the study. The target population were those working in journalism, technology and law focusing on issues of bias, transparency, legislation and attribution for algorithms, among others. Data from the study indicated that there are no widely known ethical codes for artificial intelligence use in journalism. Also, finding revealed that there are not yet industry-wide standards for properly crediting or attributing content written through algorithm. The study, therefore, advocated the need for organizations to put into action their own transparency measures.

Noain-Sánchez (2022) studied "Addressing the Impact of Artificial Intelligence on Journalism: The Perception of Experts, Journalists and Academics". Respondents for the study cut-across four countries, including USA, UK, Germany and Spain. Data were obtained through the instrument of interview. Results of the research indicated that AI plays significant role in journalism practice,

including huge benefits to media outlets. Journalists can be relieved from repetitive mundane tasks, while the media can achieve greater efficiency by producing more content with fewer human resources. The study also found that AI remains significant in automated content production and personalised distribution. The study recommended the need for human supervision over algorithm-generated content and training for journalists so that they can effectively make use of AI principles. Canvilhas (2022) investigated "Artificial Intelligence and Journalism: Current Situation and Expectations in the Portuguese Sports Media". The central aim of the study was to examine whether application of AI is already operational in Portuguese sports media houses. Survey research design guided the study. The study found that sports journalists in the country had knowledge of AI and but had not started using it in the newsrooms due to economic and professional constraints.

Meanwhile, with the current technology of ChatGPT journalists all over the world generate content ideas, automate repetitive tasks, rewrite texts, and analyse data (Fadare, 2024; Abdulmajeed & Fahmy, 2022). However, newsrooms in developing countries are comparatively behind their peers in big news organizations in understanding and implementing AI processes. Despite the use of AI in journalism, most of its use is more effective in the developed world (Calvo-Rubio & Ufarte-Ruize, 2020). The changing nature of journalism in the age of robot journalism and artificial intelligence has come to stay (Saad & Issa, 2020). AI is so essential that it helps in fact-checking of news articles; identifying false information. This technology helps to guarantee the legitimacy and authenticity of news reports (St- Germain &White, 2021).

In another study, Ogola (2023) adopted a qualitative design with data collected through Key Informant Interviews (KII) on the topic "AI, Journalism, and Public Interest Media in Africa". Findings showed that AI helps in content/news gathering, content processing, content/news distribution and audience engagement, as well as changing editorial practices and newsroom structures. Further results indicated that the challenges of the use of AI included insufficient knowledge of the use of AI, challenges of resources, poor business plans for AI, lack of teamwork between media and other stakeholders, limited and filthy facts. Others were algorithmic damage and fear of losing jobs, cultural resistance in the newsroom, poor policy and legal frameworks. The study concluded that despites infrastructural deficit that will enable AI to function effectively in the African continent, there is visible interest and growing recognition of the potential of these systems in journalism. The study recommended the need to tackle the issues of gap in knowledge, inadequate funding, lack of collaboration, improving policy and legal matters and development of local AI tools AI and quality journalism.

Kioko et al (2022) did a study titled "The Adoption of Artificial Intelligence in Newsrooms in Kenya: A Multi-case Study". The thrust of the study was to find out the factors that drive or act as obstacles to the application of AI in newsrooms business in Kenya. Through the in-depth interviews, the research collected data from population in British Broadcasting Corporation (BBC-Africa) and Radio Africa Group (RAG). Findings revealed the factors that are pushing journalists to adopt the use of AI to include management buy-in, cost, technical skills, clarity of user case, perception, and company structure. While the constraints are lack of quality data, ethical concerns, and unpredictability of the technology's impact. The study draw a conclusion that in spite of the challenges highlighted in the findings, AI remained advancement in technology that journalists in Kenya should embrace.

Similarly, Udoh, Nsude and Oyeleke (2021) carried out a study on "Awareness of Artificial Intelligence for News Production among Journalists in Ebonyi state, Nigeria". The aims of the research were to establish the level to which the respondents are aware of AI for news purposes; find out whether the journalists appreciate training that will enhance their skills in the use of AI, and to determine the part of the news production business that they believe AI can best be applied. Survey research method was used, while diffusion innovative theory and media morphosis theory were adopted to further explain the crux of the research. Findings indicated that the respondents have knowledge on the application of AI for news-related activities. The findings also revealed that while some of the respondents prefer to use AI for writing news, video coverage, editorial, others opted for using it for documentary and commentary aspect. The results of the research equally stated that there was fear of acceptance of AI technology due to loss of job, ethical issues surrounding the use of AI, insufficient knowledge on the use of AI and fear of feeding AI with the wrong data which will in turn bring out a wrong output. The study made recommendations made were that there was the need for journalists to accept training on AI, and efforts should be intensified media organizations and relevant authorities to enlighten them on the use of AI. Journalist should also accept the fact that AI will not lead to job loss, but to expand the scope of the media industry, thereby creating more jobs.

In the same vein, a study by Guanah and Agbanu (2022) revealed that journalists view the advent of artificial intelligence (AI) favourably. They agree that AI can accelerate the delivery of news and raise the calibre of news reporting. It has been observed that Nigerian media use AI in the gathering and dissemination of news (Guanah *et al*, 2020). Though the majority of Nigerian journalists are aware of the idea of robot journalism, they don't think the country is ready for its widespread adoption (Okocha & Ola-Akuma, 2022).

Theoretical Framework

The study is hinged on the Technological Determinism theory. This theory refers to the ideology that advocates for the utilization of innovations in various societal endeavours. This ideology posits that technology is the primary catalyst for transforming society. The origin of this theory is often attributed to Thorstein Veblen, (1857-1929), an American sociologist who established the causal relationship between technology and society (Hauer, 2017). The theory was later worked on by Marshall McLuhan in 1964. Proponents of this theory argue that any societal change is governed by technology, including technological advancements, communication technology, and media (Hauer, 2017). The advent of the modern information society is a direct outcome of innovation development, new technologies, and their implications. Proponents of this theory contend that society is influenced and moulded by technological progress, necessitating adjustment and adaptation to new technologies and innovations. Asemah, Nwammuo and Nkwam-Uwaoma (2017) note that technologies such as writing, printing, television, and computers change society to reflect the content and trends of the technology itself. Talabi et al (2024) argue that the technological determinism theory illuminates how the adoption of AI technologies impacts the processes, techniques, and outcomes of news production and distribution.

Thus, the use of AI has significantly changed the way journalists carryout their day-today activities. This has brought about speed in production and distribution of content. Therefore, in a study of this kind, the technological determinism theory becomes significant in the sense that AI as a technological communication initiative is either impacting positively or negatively on the journalism profession.

Methodology

The study adopted a descriptive survey research approach with data gathered via the administration of online questionnaire. The population of the study involved print journalists in some states in North-central Nigeria (Kogi, Nasarawa, Plateau, Benue, Kwara States and the Federal Capital Territory, Abuja). Adopting Krejeic and Morgan (1970) sample size determination Table 168 was arrived at as the size of the study. The study further adopted simple random sampling technique to sample the 168 respondents for data collection. The sampling of respondents was done on equal basis with 28 being sampled from each of the study area. Questionnaire structured on the basis of Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Strongly Disagree (SD) and Disagree (D) was administered on the respondents. Out of the 168 copies of the administered questionnaire, only 164 were retrieved and found worthy of analysis. The analysis of the data was therefore based on the retrieved number of questionnaires. The data were presented and analyzed using mean deviation tables, charts, frequencies, figures and percentages.

Furthermore, a total 164 responses were received and found valid for the analysis.

Data Presentation

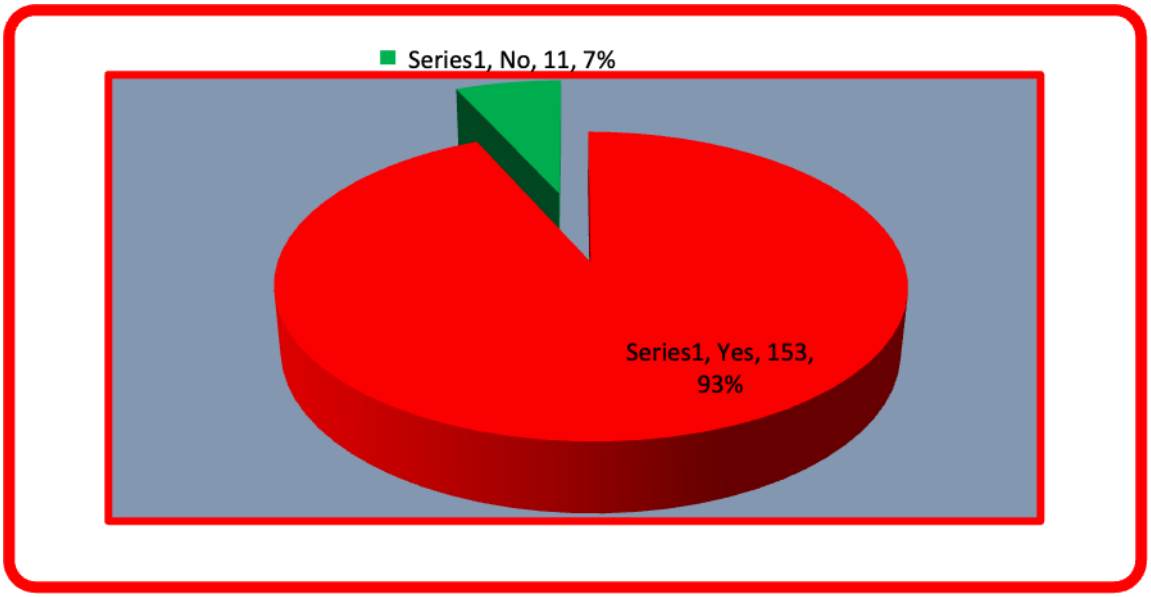

Figure 2: Respondents' Use of AI for Newsgathering and Reporting

It could be deduced from the finding in Figure 1 above that AI has become one of the online communication tools for journalism for activities.

Table 1: Types of Artificial Intelligence Use by the Respondents

Option	SA	A	U	D	SD	Mean Rating	Decision
ChatGPT	84	43	6	11	9	4.1	Accepted
Wordtune	24	94	18	4	13	3.7	Accepted
Writesonic	77	41	11	15	9	4.0	Accepted
Google Bard	63	52	20	9	7	3.9	Accepted
Chatsonic	112	17	4	6	14	4.3	Accepted
Chatbots	105	18	7	13	10	4.2	Accepted
Grammarly	119	13	3	9	9	4.4	Accepted
Audio description	89	44	8	5	7	4.3	Accepted
Jasper	93	30	11	8	11	4.2	Accepted
Caffe	78	49	9	12	5	4.1	Accepted

The above data is an indication that the respondents use various types of AI tools for their practice.

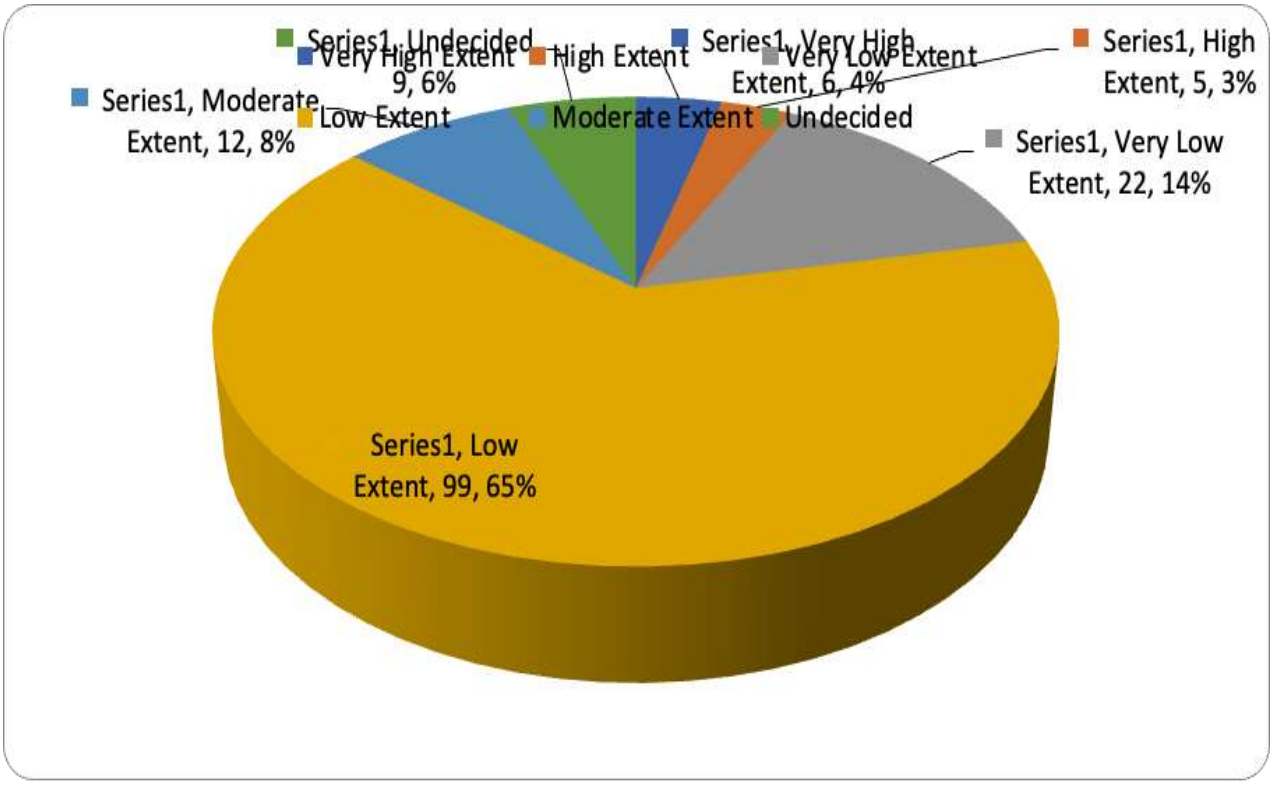

Figure 3: Extent of Utilization of Artificial Intelligence by the Respondents for their Practice

Findings in the Figure above can be inferred that the use of AI among the respondents is still low.

Table 2: Impact of Artificial Intelligence on Newsgathering and Reporting

Option	SA	A	U	D	SD	Mean Rating	Decision
AI is already automating the newsroom	104	46	3	0	0	4.6	Accepted
AI is helping to verify and fact-check	78	37	18	11	9	4.1	Accepted
AI is not the way to cut jobs	67	59	12	9	6	4.1	Accepted
AI is redefining copyright rules	94	36	5	10	8	4.2	Accepted
AI is creating new forms of investigative reporting	108	45	0	0	0	4.7	Accepted
AI allows for increased production, decreasing production costs, thereby assisting in the economic sustainability of the media	134	19	0	0	0	4.8	Accepted
AI helps journalists in data extraction, and personalised content distribution	89	64	0	0	0	4.5	Accepted

It can be deduced from the findings in the above Table that AI is impacting on journalism practice because it makes collection, processing and production faster, helps in fact finding, cannot lead to job loss, among others.

Table 3: Responses on the Obstacles for the Use of Artificial Intelligence

Option	SA	A	U	D	SD	Mean Rating	Decision
Data quality from AI is low	56	80	6	8	3	4.1	Accepted
Undermining creativity	103	37	13	0	0	4.5	Accepted
AI is creating ethical concerns in journalism practice	92	53	5	3	0	4.5	Accepted
Electricity/poor network and cost of buying data	144	39	0	0	0	5.7	Accepted
Constraints for acquiring and maintaining AI devices	76	53	9	4	11	4.1	Accepted
Shortage of expertise to operate AI tools	36	77	13	18	9	3.7	Accepted
Lack of analysis, context, and expert quotes	61	69	5	10	8	4.0	Accepted

It could be interpreted that the application of AI in journalism practice in Nigeria is highly challenged by various issues such as cost of Internet, insufficient knowledge, among others.

Discussion of Findings

First of all, findings of the study showed that all the respondents (93%) are aware of Artificial intelligence. However, despite the findings of the study revealing that respondents have knowledge of AI and make use of various AI tools for their practice, the application of AI is still low among the journalists (see Figure 1, Table 1 & Figure 3 above). This finding tallies with an earlier study of Guanah and Agbanu (2022), who stated that while AI adoption is still in its early stages among

journalists in Nigeria, AI do assist Nigerian media practitioners to have access to unlimited journalistic resources. Contrarily, Noain-Sánchez (2022) found that AI was in high use among journalists in USA, UK, Germany and Spain.

Furthermore, results of the study indicated that AI was redefining journalism practice among print journalists in North-central Nigeria. This is because AI is used to increase production, decreasing production costs, thereby assisting in the economic sustainability of the media. Also, AI is automating the newsroom, creating new forms of investigative reporting, helping to verify facts and that AI will not lead to job losses. This finding agrees with that of Ogola (2023), which earlier established that AI was helping in content/news gathering, content processing, content/news distribution and audience engagement, as well as changing editorial practices and newsroom structures. Also, in line with the results of this study is that of Canvilhas (2022), who stated that sports journalists in Portugal have knowledge of AI and it is used in newsrooms to enhance productivity as well as to address professional challenges. This finding equally justifies the application of Technological Determinism Theory, which states that society is influenced and moulded by technological progress, necessitating adjustment and adaptation to new technologies and innovations.

Data also revealed that the use of AI for journalism activities is constrained by many factors (Table 3). These include low quality of data from AI, AI is undermining creativity, AI is creating ethical concerns in journalism practice, as well as poor electricity supply, poor network and cost of buying data affect the application of AI in journalism practice. Others are high cost of purchasing and maintaining AL tools, lack of analysis, context, and expert quotes, insufficient knowledge in the use of AI and sometimes AI gives inaccurate information. Udoh *et al* (2021) finding corroborates this result by revealing that the fear of acceptance of AI technology was due to loss of job, ethical issues surrounding it, inadequate knowledge on how to make use of it and fear of feeding AI with the wrong data which will in turn bring out a wrong output.

From the findings of the study, it implies that the research discussed the advantages of possibly incorporating artificial intelligence (AI) into news gathering and reporting among journalists in some states in North Central Nigeria. The investigation highlighted several benefits, including improved writing skills, fact-checking, increased efficiency and productivity, improved accuracy and reliability, and cost savings. These benefits are vital to improving the quality, efficiency, and reach of news content not only in Nigeria but the world at large.

The results of the study further underscored the importance of addressing the challenges associated with the application of AI in journalism practice, such as the need to train journalists in Nigeria to enable them use the various tools of AI effectively and efficiently. An investigation by Talabi *et al* (2024) pointed out the significance of AI in media industry such as increased efficiency and precision, however, the research noted the shortcomings and concerns associated with the use of AI in media discipline, which include the need for media practitioners to adopt and adapt to new communication innovations and technologies with a view to maintaining their professional autonomy, privacy concerns, among others. This underscores the fact that despite the challenges associated with the use of AI in journalism practice, it has become important to journalists in expanding the scope of their gathering and reporting businesses

Conclusion

The thrust of this study is on the adoption and use of artificial intelligence for newsgathering and reporting among journalists in Kogi, Nasarawa, Plateau, Benue, Kwara States and the Federal Capital Territory, Abuja. Upon detailed analysis of data gathered, the study concludes that respondents are aware of AI; apply it in their jobs but at a low level. The study also concludes that the respondents use AI to increase the output of their profession, verify facts, investigate better and to automate their activities. AI application is constrained by insufficient electricity, poor network, high costs of data and AI equipment, fear of job loss, undermining of creativity, lack of context and inadequate knowledge in its usage.

Recommendations

i. Media practitioners in Nigeria should receive training in AI literacy and critical thinking to be able to use AI technologies effectively and efficiently.
ii. Media establishments in Nigeria should come up with ethical guidelines for the use of AI in their organizations.
iii. The Nigerian government should address the issues of electricity, networks, and other infrastructural gaps that prevent the country from fully utilizing AI.
iv. More studies should be conducted on the application of AI in health practice and other disciplines like banking, education, apiculture, etc.

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