PERCEPTION, ACCEPTANCE OR RESISTANCE OF ARTIFICIAL INTELLIGENCE AMONG JOURNALISTS IN NIGERIA

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Abstract

Like every known world innovation, the advent of artificial intelligence and its rapid intrusion into the everyday life of humans has left many on their toes. AI is gradually, if not rapidly changing the way journalists gather, edit and disseminate news stories. From research to sourcing to news writing, AI has greatly influenced what is needed to run a contemporary newsroom. To ascertain the perception and adoption of artificial intelligence tools by journalists in Nigeria, this study utilised online surveys targeting journalists working in digital, print, or broadcast media outlets across the country. From the population of 15,000 journalists registered with the Nigerian Union of Journalists, a sample size of 390 was determined using the Taro Yamane formula. The researcher identified at least one journalist from popular newsrooms across the country who helped as research assistants to share the online questionnaire with their colleagues. Anchored on the Diffusion of Innovation, and Mediamorphosis theories, the study found among other things that majority of journalists believe that AI plays an important positive role in making the journalistic process easier. Also, journalists in Nigeria are not resistant to using AI tools for their work, rather they are either neutral or open-minded to the benefits of AI tools in the journalism practice. Above all, the study found that journalists in Nigeria are not bothered about AI taking over their jobs but are rather worried about how it will negatively impact the quality of news coverage and ethics of journalism practice.

KEYWORDS: Acceptance, resistance, perception, adoption, artificial intelligence, automation, robot-journalism, journalists

Introduction

Journalism and technology are intertwined, as the evolution of technology and automation is integral to the production of news. Throughout this history, the definition of automation has changed with time. A basic explanation of automation is that it is a mechanical process/or a series of processes that can replace manual labour (Ganguly, 2022).

The Turing Test (later popularized as the imitation game) was created by the father of AI, Alan Turing, in the 1950s, posing a simple question– "Can machines think?" Ganguly (2022) noted that intelligent systems have existed since the late 20th century, but that it was around the 2000s that the technology for processing or aiding these systems became commercially viable, leading to a host of automated tools for news.

For over a decade, the implementation of automation in journalism has been rapid. In 2015, the New York Times unveiled 'Editor', an AI-powered research tool that identified semantic tags while writing a report to gather supporting data in real-time; similarly, BBC has been using their AI-powered Juicer since 2012 to extract data from their base of 850 global news outlets' RSS feeds (BBC News Labs 2012). The Guardian unveiled its chatbot for Facebook in 2016, allowing readers to select a timezone and get digested customised headlines

in their chatbox. Also, 'Who Targets Me', a browser extension that monitors targeted advertising by political parties on Facebook, was used during the UK Snap Election to investigate 'dark ads' used by political parties (Ganguly, 2017).

The Associated Press says it now produces automated stories on quarterly earnings reports for around 3,700 companies, up from 400 companies covered previously. A similar number of automated stories is produced each year by AP's nearest competitors Reuters and AFP (Fanta, 2017)**.** The use of automation is becoming increasingly important in news agencies for content production. The largest news agencies in the world, AP, Reuters and AFP, now produce thousands of stories each month with the help of algorithms. Robot journalism is also being tested and used by several smaller news organisations in Europe. However, some news agencies are sitting on the fence, including large organisations such as the Spanish agency Efe and Ansa in Italy. This indicates that automated journalism cannot yet be considered ubiquitous in news production. News agencies appear reluctant to invest in automation projects that do not promise great economies or new business (Fanta, 2017)**.**

AI experiments and implementation at big news organizations such as AP show that it does the opposite of degrading journalists to the role of database managers, freeing up to 20 percent of the journalists time. Scholars like Nwanyanwu & Nwanyanwu, (2021) opined that that this way, journalists can focus on content and spend more time on their core expertise which is reporting. Many examples of augmentation are already available. Speech-to-text-powered transcription tools like Trint or recordly can be used instead of spending hours transcribing interview recordings. A variety of companies, such as Clarifai and Vidrovr, are utilizing computer vision to automatically recognize and tag photos, find similar concepts, and speed up the workflow of image editors. The production of video news packaging can also be automated by AI. An Israeli company, Wibbitz, has created a text-to-video platform that analyzes images to create videos that match texts automatically for faster rough cuts that can be refined by humans later. Again, this tool is augmenting, not replacing traditional video production. Graphext and Newswhip can automatically identify news topics based on social media data using machine learning (Nwanyanwu & Nwanyanwu, 2021).

Statement of the Problem

Many industry leaders have been occupied lately by discussions on the global automation trend. In spite of technology's benefits in terms of improved competition in the markets, it is threatening to replace certain types of jobs, resulting in severe unemployment and unprecedented income disparities (Allen, 2017)**.** The rise of industrial automation started when humans were replaced by machines in factories. Now, automation is capable of both manual and cognitive tasks, and it is gradually spreading through banking and finance to more creative fields, such as journalism (Pashevich, 2018). The right to write creatively and for publication is still regarded as a human right. It is therefore strongly controversial to employ automation in journalism, causing heated debates among authors, editors, journalists, and journalists' trade unions.

It was once predicted by Kris Hammond, the CEO of Narrative Science, that more than 90% of news would be generated by computers by 2030 (Levy, 2012). It is evident that the sphere of journalism is becoming increasingly technologically advanced, yet the adoption of artificial intelligence software for the task of writing texts may represent a paradigm shift. It can shake up the fundamental ethics and established practices of journalism. This means that the use of artificial intelligence in journalism might disrupt the media space. As Clerwall, (2014) notes: "If the content produced by a piece of software cannot be distinguishable from the content produced by a human reporter, and/or if it is just a bit boring and less enjoyable to read, why should news organisations allocate resources to human writers? It was immediately followed by heated debates on the question of robots replacing human journalists, which Linden, (2017) responded to with a definitive "no", arguing that journalism is a creative profession with a strong ideology, and as such there is little or no risk of being replaced by machines.

Currently, there are two major scholarly attitudes towards automated journalism: technological optimism and techno-pessimism. Techno-optimists regard automated journalism as an opportunity to cut costs and increase the

quantity and quality of news, while techno-pessimists worry about its practical implementation. This is the idea that technology often leads to unpredictable, even dangerous results. Automated journalism invokes concerns about its practical implementation, and the need to dismiss even more journalists, as well as the ethical and legal challenges ("Guide to Automated Journalism | Tow Center," 2016).

The implementation of automated journalism in newsrooms today is a topic worth researching as it touches on the issues of the quality of journalism, its ethics and even the employability of journalists, hence the need for this present study.

Objectives of the Study

While this study generally aims to find out the perception and adoption of artificial intelligence by journalists in Nigeria, the specific objectives are to:

1. Ascertain the level of awareness of the different AI journalism tools among journalists.
2. Investigate the perceptions of journalists on the role of AI in journalism practice.
3. Examine the extent to which journalists in Nigeria are adopting/resisting artificial intelligence in their journalism practice.
4. Investigate the possible fears journalists in Nigeria have about adopting AI tools for news production.

Literature Review

The purpose of the literature review is to provide an overview of existing literature in the area of my study: that being, the use of artificial intelligence in journalism practice, its impact and potentials for the growth of journalism. In the age of artificial intelligence, the news industry must contemplate strategies for empowering itself with artificial intelligence (Kuo, 2000). Munoriyarwa, Chiumbu, & Motsaathebe, (2023) argued that the skepticism of South African journalists about artificial intelligence is linked to the broader debates about the future and purpose of journalism in post-apartheid South Africa. The authors also argued that journalists see themselves as a unique community of creatives with a peculiar role of upholding democracy in ways that will not synchronise neatly with automation and AI practices.

On June 13, 2017, a policy exchange forum of technologists and journalists was held by the Tow Center for Digital Journalism and the Brown Institute for Media Innovation to discuss how artificial intelligence can help in the newsroom. After examining several case studies, they suggested that AI can be very helpful to newsrooms in three different categories:

1. AI can be a breakthrough tool in finding needles in haystacks, and its findings can be fact-checked via standard human investigative techniques.

2. Identifying trends (or departures from trends): The computing power of Artificial Intelligence can help newsroms with identifying trends or departures from trends. This is because it can easily identify outlier data.

3. By examining an application of AI or computation as the subject of the story itself: We can discover previously unseen bias through these tools (Hansen, Roca-Sales, Keegan, & King, 2017).

As trust in news has been eroded by disinformation and misinformation distributed on social media, AI can help journalists detect and diminish disinformation and misinformation distributed on social media. On the possibility of AI tools relieving journalists of their jobs. Some senior newsroom managers may look at AI as a way to cut operating costs and work with fewer journalists, but this would be a mistake. AI technologies will enhance, rather than replace journalists' work (Nwanyanwu & Nwanyanwu, 2021).

Nwanyanwu & Nwanyanwu's positions on the possibility of relieving journalists of their jobs is similar to an earlier stance by Hansen et al. (2017) who opined that AI tools can help journalists tell new kinds of stories that were previously too resource-impractical or technically out of reach. They went further to add that while AI may transform the journalism profession, it will enhance, rather than replace, journalists' work. In their words, 'for AI to be used properly, it is essential that humans stay in the loop (Hansen et al., 2017). Miroshnichenko

in a 2018 article titled AI to Bypass Creativity. Will Robots Replace Journalists? (The Answer Is "Yes") argued that human journalists are in a qualitative and quantitative competition with cyber-colleagues and that this competition is no longer at the beginning, as most people think, but is already moving to the end. In the quantitative contest, bio-journalists have already lost. They are set to lose in the qualitative competition in 5–7 years. The author also posited that when traffic is prioritized in journalism, editors would also prioritize fast journalists and not just the best journalists. By fast journalists, he means artificial intelligence tools used in producing news stories. In his words, the editor would most likely choose a flawless algorithm with decreasing maintenance costs that can produce three stories per minute over a capricious, talented (or not so much) journalist with increasing salary demands and three stories per week (Miroshnichenko, 2018).

To place this research work in its rightful place in history, it reviews relevant and related works of other authors to enrich and strengthen the substance of the content of the study. Fanta (2017) in a survey of 15 news agencies in Europe, and AP in the US, found that 9 out of the 15 used automated text creation, with tools in development at two of the news agencies. The study used semi-structured opinion to determine if automation tools were in development or in use and how. It found that most of the implementation was rudimentary, and one of the main barriers to robots replacing journalists was not just the algorithm but the lack of expansion and development in the area due to costs involved. However, it failed to define automated journalism beyond "robot-written (Fanta, 2017).

Another study conducted by Kim and Kim in 2018 interviewed 47 journalists from 17 South Korean newspapers and found three classes of views on automation in journalism practice: the first group were fairly resistant to the idea of automation (believed journalism cannot be automated), the second were highly resistant (concerned about augmentation destroying the quality of journalism), while the third were least resistant (open to augmentation for simple tasks like alerts). The authors suggested that robots' capabilities be "tested from the perspective of journalism, regardless of fast and accurate data processing. The other issue as noted by Kim and Kim concerned job stability, as journalists were worried about a decline in their 'status in their organization and society'. This is because they presume that organizational restructuring will come with the employment of robot (Kim & Kim, 2018).

In the same year, Túñez-López et al. conducted a large-scale survey comprising 366 Spanish journalists to map the use of AI in journalism. Using a hybrid model of 10 open and closed questions used to assess the application, knowledge of tools, and perception of quality, the authors found that knowledge of automated content was low. The study also found that none of the 300+ journalists thought to rethink their news making workflow (Túñez-López, Toural-Bran, & Cacheiro-Requeijo, 2018)

On the contrary, an earlier study by Van Delen in 2012 analysed the opinions in 68 blog posts and newspaper articles published in 2010 to define the attitudes of journalists towards automation. The author found that journalists saw "robot journalism" as an opportunity to improve workflows by automating routine tasks, leaving more time for in-depth reporting (van Dalen, 2012).

In late 2019, the London School of Economics, in collaboration with Google News Initiative conducted a global survey on the state and development of AI in 71 news organisations from 32 countries. ("New Powers, New Responsibilities. A Global Survey of Journalism and Artificial Intelligence," 2019). The report shows that artificial intelligence (AI) is a significant part of journalism already but it is unevenly distributed. It also stated that in the context of newsrooms, AI is perhaps best understood as an umbrella term, in part because people use different operational definitions of the word, which in turn reflects the variety of approaches people are taking when using the technology. It then summarized that AI is giving journalists more power, but with that comes editorial and ethical responsibilities ("New Powers, New Responsibilities. A Global Survey of Journalism and Artificial Intelligence," 2019).

Also in 2023, the same organization surveyed more than 60 newsrooms and media organisations. The survey includes 35 questions ranging from the technical, to the ethical, the region-specific, and specifically asked respondents, "why do you use AI technologies

in your newsroom? What do you hope to achieve by using these technologies?" More than half of the respondents said they hoped to automate mundane tasks and simplify workflows to free up journalists to engage in "more creative, relevant, and innovative work**."** The article written by Mira Yaseen, Lead Researcher of JournalismAI, and Professor Charlie Beckett, who is leading the project concluded that most of the newsrooms surveyed have already experimented with generative AI technologies like ChatGPT, but not necessarily to create content; rather, for code writing, summaries, enhancing headlines and Search Engine Optimisation. (Beckett, 2023)

To conclude, it is pertinent to review the content analytical study conducted by Moran & Shaikh in 2022 which analysed 95 articles relating to AI in journalism over a 5-year period, starting in 2016 and ending in 2020, the authors examined prominent themes related to uses, roles, and concerns regarding AI in the newsroom, sampled coverage from 20 US and UK news media outlets using a thematic analysis on the media coverage of AI as it relates specifically to its use and application in journalism. The study succeeded in uncovering the tension between the industry and profession of journalism in highlighting the hopes and pitfalls of AI (Moran & Shaikh, 2022)**.**

Theoretical Framework

This research is anchored on the Diffusion of Innovation Theory and Mediamorphosis theory.

The diffusion of innovative theory is considered one of the relevant theories for this work. The theory was developed by Everett M. Rogers in 1962. This theory explains that when new technological innovation is introduced, they will move across series of stages before they are generally adopted. It further explains that majority of the people will know about the new innovation, few folks can adopt the innovation as long as they hear it. Other people will take longer time to try something new and yet, others will take much longer in adoption.

The second theory that gave foundation to this work is the Mediamorphosis theory which was coined by Roger Fidler in 1990, but was made feasible in his book in 1997 when he referred to it as the transformation of communication media, usually brought about by the complex interplay of perceived needs, competitive and political pressures, and social and technological innovations Blogspot, (2012) as cited in (Guanah, Obi, & Ginikachukwu, 2020)**.** The theory explains that new media only evolved to update and upgrade old media. In this way, we may say that AI or software journalism is primarily intended to improve upon the traditional labour of news sourcing that requires movement to various locations to source news, conduct interviews and return to writing, editing footages (TV broadcast) and publishing or broadcasting eventually. Corroborating this, Nwammuo & Nwafor (2019), stated that artificial intelligence, like new media, did not emerge spontaneously or independently, but rather as a result of progressive improvements to an old medium (Nwammuo & Nwafor, 2019)**.**

These theories were chosen as the best theories for this study since they discusses the current changes in how news is produced, as well as how the entrance of AI into news production may influence information circulation in better and more sophisticated ways.

Research Methology

The Survey research design was adopted for this study because of the information required for the Study. The population of the study was all the 15,000 registered members of the Nigerian Union of Journalists as indicated on the Union's website as at March 18, 2024. (https://nuj.ng/).

To determine the sample size of this study, the researchers used Taro Yamane formula with 95% confidence level and 0.05 limit of tolerable error to calculate and arrived at 390. Furthermore, the simple random sampling technique was used to obtain a representative sample for this study. The Taro Yamane method for sample size calculation was formulated by the statistician Tara Yamane in 1967 to determine the sample size from a given population. Below is the mathematical illustration for the Taro Yamane method: $n= N/ (1+N (e)^2)$.

Where: n = sample size, N = population under study, e = margin error (it could be 0.10, 0.05 or 0.01)

In this case, N=15,000 while e=0.05

$n= 15,000/ (1+ 15,000(0.05)^2)$

n= 15,000/ (1+ 37.5)

n= 15,000/ 38.5

n= 390

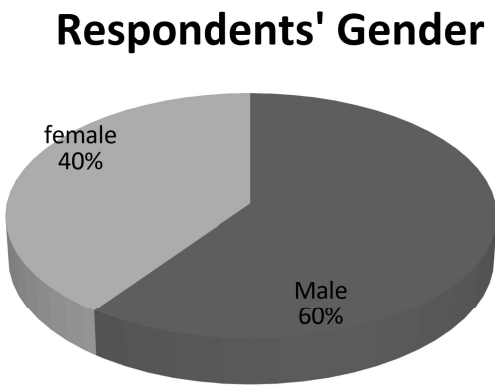
Therefore, the sample size is 390 from the total population of 15,000.

The study utilized random sampling technique to identify and administer questionnaires to practicing journalists in Nigeria. The researcher identified at least one journalist from popular newsrooms across the country and these journalists helped share the online questionnaire with their colleagues both physically, via emails, and WhatsApp. A total number of 300 respondents filled the questionnaires within a period of one month (February to March 2024). The researcher made use of a five-point Likert scale questionnaire designed using Microsoft Form.

The following is the presentation of data gathered from the survey method. It is important to note that out of the sample size of 390 respondents, only about 300 journalists filled and returned the questionnaire. This represents 77%.

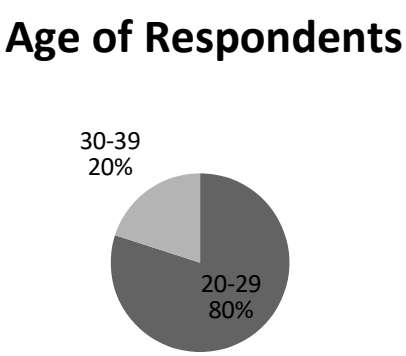
RESULTS

Chart 1: Respondents' Gender



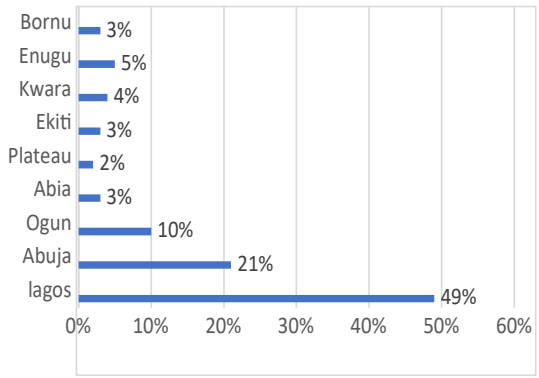
The chart 1 above shows that the male represents 60% while the female represents 40%. This indicates that both genders were represented in the study.

Chart 2: Age of respondent



The chart 2 above shows the age range of respondents. This indicates that majority of the respondents is between the ages of 20 to 29. Although ages 40 to 49 and 50+ were included in the questionnaire, none of the respondents were within those age ranges.

Chart 3: Respondent's state of residence



The chart above indicates that over half of the journalists who responded to the questionnaire were resident in Lagos State, which houses most media organisations in Nigeria. This is followed by Abuja, the federal capital territory of the country which equally houses many media organisations. Other respondents are distributed almost equally among other states in both Northern and Southern parts of the country.

Chart 4: Respondent's Media Sector

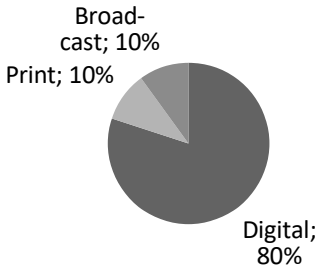
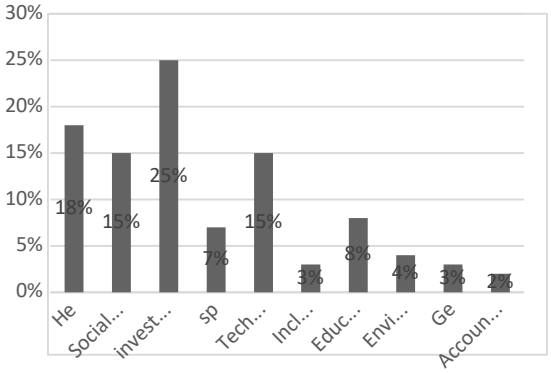


Chart 4 above explains that 80% of journalists who responded were working in the digital media sector, while only 10% each were working in the print and broadcast media sectors.

Chart 5: Beats covered by respondents



The chart above indicates that a quarter of the respondents were investigative journalists while other journalists covered several other beats such as health, social justice, sports, technology, inclusion, education, environment, gender and accountability.

Table 1: level of awareness regarding each AI tool used in journalism practice.

Variable	Not Aware	Slightly Aware	Moderately Aware	Very Aware	Extremely Aware	Total
Automated Writing (AI-generated news articles)	0 %	0%	60 (20%)	120 (40 %)	120 (40 %)	300 (100%)
Natural Language Processing (NLP) for automated content analysis	120 (40 %)	90 (30 %)	90 (30%)	0 %	0%	300 (100%)
Recommendation Systems for personalized article suggestions	60 (20 %)	90 (30 %)	90 (30%)	60 (20 %)	0%	300 (100%)
Sentiment Analysis for public sentiment tracking	90 (30 %)	90 (30 %)	90 (30%)	0 %	30 (10 %)	300 (100%)
Automated Translation for real-time multilingual news coverage	90 (30 %)	0%	60 (20%)	150 (50 %)	0%	300 (100%)
Image Recognition for automated image tagging and classification	0 %	0%	120 (40%)	180 (60 %)	0%	300 (100%)
Speech-to-Text Transcription for audio and video content	0 %	30 (10 %)	30 (10%)	180 (60 %)	60 (20 %)	300 (100%)

Virtual News Anchors powered by AI	60 (20 %)	90 (30 %)	150 (50%)	0 %	0%	300 (100%)
Deepfake Detection for identifying manipulated or synthetic media	30 (10 %)	60 (20 %)	90 (30%)	90 (30 %)	30 (10 %)	300 (100%)
Automated Fact-Checking systems using AI algorithms	30 (10 %)	30 (10 %)	60 (20%)	180 (60 %)	0%	300 (100%)
Total	480 (16 %)	390 (13 %)	840 (28%)	1050 (35 %)	240 (8%)	3000

From table 1 above, it is evident that Nigerian journalists have varying degrees of awareness for different AI tools used in journalism practice. It is also clear that of the mentioned areas, journalists were mostly unaware of Natural Language Processing (NLP) for automated content analysis, followed by Sentiment Analysis for public sentiment tracking and Recommendation Systems for personalized article suggestions.

The table also shows that journalists were most aware of the use of AI tools in areas such as Automated Writing (AI-generated news articles) and Speech-to-Text Transcription for audio and video content followed by areas like Image Recognition for automated image tagging and classification and Automated Fact-Checking systems using AI algorithms.

Other areas such as Recommendation Systems for personalized article suggestions, Virtual News Anchors powered by AI and Deepfake Detection for identifying manipulated or synthetic media were mostly between moderate awareness level and slight awareness.

Generally, Majority of respondents were very aware of the listed AI tools for journalism practice as seen on the table above.

Chart 6: Journalists' use of AI-driven tools in news production

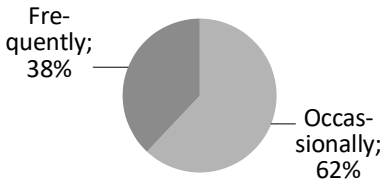


Chart 6 above explains that 62% of journalists responded in thee affirmative to have encountered and used AI-driven tools in their news gathering, writing and dissemination processes.

Chart 6: formal training or workshops related to AI tools for news production?

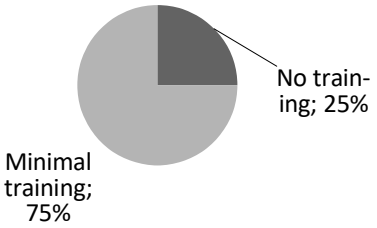


Chart 6 above explains that while majority of the journalists received minimal training, about 25% received no training at all. Also, none of the journalists received extensive or expert-level training on the use of AI-driven tools in news production.

Table 2: Journalists' perception regarding the role of AI in journalism practice.

Variable	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total
AI can help journalists conduct in-depth research and analysis	24 (8 %)	0%	12 (4 %)	168 (56 %)	96 (32 %)	100 %
AI can enhance the speed and efficiency of news productions	30 (10 %)	0%	0%	225 (75 %)	45 (15 %)	100 %
AI can help journalists discover new angles and perspectives in news stories	0 (0 %)	0%	0%	204 (68 %)	96 (32 %)	100 %
AI can assist in detecting and combating fake news.	30 (10 %)	30 (10 %)	30 (10 %)	123 (41 %)	87 (29 %)	100 %
AI can improve personalization in news delivery to cater to individual user preferences.	15 (5 %)	45 (15 %)	60 (20 %)	111 (37 %)	69 (23 %)	100 %
AI can contribute to the automation of repetitive and mundane journalism tasks.	0 (0 %)	0%	30 (10 %)	240 (80 %)	30 (10 %)	100 %
AI can assist in identifying patterns and trends in big data	0 (0 %)	0%	0%	261 (87 %)	39 (13 %)	100 %

for investigative reporting.						
Total	**99 (5 %)**	**75 (4 %)**	**132 (6 %)**	**1,332 (63 %)**	**462 (22 %)**	**2100**

From table 2 above, it is evident that journalists generally perceive AI as a helpful invention to make their work easier and faster. This is seen in the first variable which shows that majority of respondents either agree or strongly agree that AI can help journalists in conducting in-depth research and analysis. Similarly, 90% of journalists agree that AI can enhance the speed and efficiency of news productions. 100% of the respondents agree that AI can help journalists discover new angles and perspectives in news stories. 90% agree that AI can contribute to the automation of repetitive and mundane journalism tasks. 100% totally agree that AI can assist in identifying patterns and trends in big data for investigative reporting. 70% agree that AI can assist in detecting and combating fake news. However, only 60% agree that AI can improve personalization in news delivery to cater to individual user preferences.

Table 3: Journalists' adoption or resistance of AI tools

Variable	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Journalists have a strong resistance towards incorporating AI in their daily work.	9 (3%)	171 (57 %)	90 (30 %)	0 %	30 (10 %)	100 %
Journalists are hesitant to embrace AI due to concerns about job security.	27 (9%)	93 (31 %)	60 (20 %)	120 (40 %)	0%	100 %
Journalists have a neutral stance towards integrating AI into journalism practice.	60 (20 %)	60 (20 %)	90 (30 %)	90 (30 %)	0%	100 %
Journalists are gradually adopting AI as they recognize its potential benefits.	0%	0%	60 (20 %)	141 (47 %)	99 (33 %)	100 %
Journalists enthusiastically embrace AI in their	18 (6%)	42 (14 %)	150 (50 %)	15 (5 %)	75 (25 %)	100 %

work and actively seek out its implementation						
Journalists have an open-minded attitude towards AI, but require more convincing evidence of its benefits	0%	60 (20 %)	120 (40 %)	84 (28 %)	36 (12 %)	100 %
Journalists actively avoid implementation of AI in their work	90 (30 %)	60 (20 %)	90 (30 %)	60 (20 %)	0%	100 %
Total	204	486	660	510	240	2100

Table 3 above shows that most journalists in Nigeria are gradually adopting AI as they recognize its potential benefits to make their work easier. Only 10% of the respondents agree that Journalists have a strong resistance towards incorporating AI in their daily work. On whether Journalists are gradually adopting AI as they recognize its potential benefits, 80% answered in the affirmative also adding that they are enthusiastically embracing AI in their work while actively seeking out its implementation.

Table 4: Fears journalists have regarding the adoption of AI in news coverage and their job security.

Journalists are worried that AI will replace their job roles in news coverage	90 (30 %)	60 (20 %)	30 (10 %)	45 (15 %)	75 (25 %)	100 %
Journalists fear that AI can lead to biased or skewed news content due to its algorithms.	30 (10 %)	30 (10 %)	30 (10 %)	135 (45 %)	75 (25 %)	100 %
Journ	30	30	30	12	90	10

alists believe that AI can negatively impact the quality of news content	(10 %)	(10 %)	(10 %)	0 (40 %)	(30 %)	0 %
.Journalists express concerns about the accuracy and reliability of AI technologies.	30 (10 %)	30 (10 %)	120 40 %)	90 (30 %)	30 (10 %)	100 %
Journalists fear that AI-based news algorithms may favor certain political or corporate biases.	0%	0%	60 (20 %)	201 (67 %)	39 (13 %)	100 %
Journalists are concerned about the erosion of journalistic ethics and standards with the use of AI	0%	0%	0%	117 (39 %)	183 (61 %)	100 %
Journalists worry that AI may lead to the decline of human investigation and storytelling skills.	30 (10 %)	60 (20 %)	30 (10 %)	54 (18 %)	126 (42 %)	100 %
Journalists fear that AI adoption might lead	0%	30 (10 %)	60 (20 %)	150 (50 %)	60 (20 %)	100 %

to a reduction in the diversity of news sources and perspectives						
Journalists are anxious that AI-generated content will affect public trust in journalism	0%	30 (10%)	0%	165 (55%)	105 (35%)	100%
Total	**210**	**270**	**360**	**1077**	**783**	**2700**

Table 4 above shows that most Nigerian journalists have various fears on the security of their jobs with the advent of artificial intelligence. This is deduced from the fact that barely few journalists disagreed to the different forms of fears listed in the questionnaire. Particularly, 100% of the respondents showed concerns about the erosion of journalistic ethics and standards with the use of AI. 90% are anxious that AI-generated content will affect public trust in journalism, 80% of journalists fear that AI-based news algorithms may favor certain political or corporate biases, while 70% each believe that AI can negatively impact the quality of news content as well as lead to biased or skewed news content due to its algorithms. On the other hand, only 40% are worried that AI will replace their job roles in news coverage.

Discussion of Findings

Question 1: To what extent are Nigerian journalists aware of the different AI tools used for news production?

This research question was answered by table 1 which depicts that most Nigerian journalists were aware of AI-enabled tools/software used for Automated Writing (AI-generated news articles) and Speech-to-Text Transcription for audio and video content. They were also aware of AI tools used in mage Recognition for automated image tagging and classification as well as Automated Fact-Checking systems using AI algorithms.

On the other hand, journalists were mostly unaware of tools used for Natural Language Processing (NLP) for automated content analysis, and AI-enables tools for Sentiment Analysis (public sentiment tracking and Recommendation Systems for personalized article suggestions.

Journalists also indicated being either slightly or moderately aware of AI-powered virtual News Anchors and AI tools used for Deepfake Detection and identifying manipulated or synthetic media. Generally, Majority of journalists in Nigeria are very aware of the different AI tools used for journalism practice.

Question 2: What are the perceptions of journalists on the role of AI in journalism practice?

Table 2 of this research paper answered this research question. Generally, majority of journalists are of the opinion that AI plays an important positive role in making the journalistic process easier. This is seen from the table 2 which shows that 63% of respondents agree and 22% strongly agree to the variables which suggests that AI makes their work easier. Only 6% of the respondents remained neutral while only 9% disagreed to the variables that AI makes their work easier.

This is similar to the findings of Van Delan (2012) which stated that journalists saw "robot journalism" as an opportunity to improve workflows by automating routine tasks, leaving more time for in-depth reporting. Similarly,

Beckett (2023) in another research found that more than half of the respondents said they hoped to automate mundane tasks and simplify workflows to free up journalists to engage in "more creative, relevant, and innovative work." Also, de-Lima-Santos & Ceron, (2021) maintained that AI in news media can certainly make journalism easier for overburdened resources without replacing journalists' unique skills.

Question 3: To what extent are journalists in Nigeria adopting/resisting artificial intelligence in their journalism practice?

This research question was answered by Table 3 of this paper which revealed that questions centred on the adoption of AI tools had more journalists responding in the affirmative while questions centred on the resistance of AI among journalists had more respondents answering in the negative. This means that journalists in Nigeria are not resistant to using AI tools for their work, rather they are either neutral or open-minded to the benefits of AI tools in the journalism practice. This is in line with the findings of Kim and Kim in their 2018 study where they interviewed 47 journalists from 17 South Korean newspapers and found three classes of views on automation in journalism practice: the first group were fairly resistant to the idea of automation (believed journalism cannot be automated), the second was highly resistant (concerned about augmentation destroying the quality of journalism), while the third was least resistant (open to augmentation for simple tasks like alerts).

Question 4: What are the possible fears journalists in Nigeria have about adopting AI tools for news production?

Findings from this research as seen on table 4 reveals that journalists in Nigeria are not bothered about AI taking over their jobs but are rather worried about how it will negatively impact the quality of news coverage and ethics of journalism practice as well as lead to the decline of human investigation and storytelling skills.

CONCLUSION

The world is continually changing and it has become inevitable for journalists and newsrooms to flow with the tide, lest they would be left behind. Artificial intelligence and automation is changing journalism. At major news organizations, algorithms create thousands of stories every day without much human interference. Robot-written stories have vastly expanded coverage in certain fields, especially in financial news and sports. It has become pertinent that journalists among other things, jettison the fear of losing their jobs to AI. Instead, they should arm themselves with AI-enabled tools, become masters of it and make it do their bidding like they have done over the years with similar world innovations. To achieve this, newsrooms should invest in capacity training to equip reporters on the best ways to utilize AI-enabled tools for optimum output. As revealed by findings from this research, journalists are more worried about AI's potential to tamper with the quality of news coverage, ethics of journalism, reduce storytelling abilities among other vices. Therefore, newsrooms should find ways to conquer this by training journalists to be able to bypass these pitfalls.

Recommendations

Based on the findings of this research, the author recommends that:

- Nigerian journalists especially those working in the digital media industry should familiarize themselves with AI-powered tools for virtual news anchoring and deepfake detection tools for identifying manipulated or synthetic media. This will reduce the rate of mis/disinformation.
- Newsrooms should invest in training and retraining of staff on the use of AI-driven tools in news production. Journalists should occasionally take courses on Artificial intelligence tools as part of their personal development goals.
- Since findings from this research show that journalists in Nigeria are more worried about AI negatively impacting the quality of news coverage and ethics of journalism, this author suggests that newsrooms take up the responsibility of developing their own AI tools while ensuring strict compliance to journalism practice as opposed to focusing only on news production while leaving the development of AI

tools in the hands of people who have no knowledge of the news production process and the required ethics.

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