# A Survey of Awareness and Adoption of Artificial Intelligence Journalism among Lagos and Kwara States Journalists in Nigeria

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## Abstract

Artificial Intelligence (AI) has become a transformative force in various industries worldwide, and journalism is no exception. This technological advancement has the potential to revolutionize the field of journalism by enhancing efficiency and accuracy in news reporting. In this study, the researchers leveraged the strength of the diffusion of innovation theory. The survey method was adopted to examine journalists' level of awareness and adoption of AI in their journalistic engagements and their perception of the likely impacts of AI on conventional journalism practice. With a survey of 376 journalists in Lagos and Kwara States, Nigeria, the study found a high awareness of artificial intelligence journalism among Lagos and Kwara States journalists in Nigeria. However, only a few have adopted the innovation in their day-to-day practice. This is because of the perceived professional and ethical challenges that undermine journalists' ingenuity, creativity, and skillfulness. Therefore, the study recommended that journalists and media stakeholders embrace artificial intelligence in journalism practice for effective and efficient outcomes.

**Keywords:** artificial intelligence, journalism practice, artificial intelligence journalism, media technology

## Introduction

The roles and values of journalism in any society can never be underestimated because it is simply one of the necessities of modern existence. The profession has become ingrained in our culture (Aggarwal & Gupta, 2001). According to Endres (2001), many individuals begin their day by reading a newspaper or magazine or visiting their favorite websites online. People read the newest news stories, scan through opinion pieces, share news articles with friends, and express their own views on contents of journalistic messages. The legacy and new media have become viable means through which people can easily and proximately access news and information

that interest them (Endres, 2001). Holistically, journalism is concerned with promptly bringing current events to the attention of thirsty audience who need to be satisfied with news information (Ben, 2016). In carrying out this task, professional journalists tend to offer news in a simple and understandable manner and deliver timely in a meaningful way to them and satisfies their demand for information (Ben, 2016). Considering the present scope of journalism, which extends to non-personnel involved in news creation and dissemination, this study focuses on the one (journalist) who is professionally trained and employed in a medium of public communication such as newspaper, magazine, television, radio, wire service, news agency or other adjuncts of the media.

Interestingly, like other industrial sectors, technology has become a driving force for the media industry to create new digital content in response to audience expectations (Ali & Hassoun, 2019). Therefore, journalism has thrived extremely much from significant technological advancements. Journalism developed due to one of the most significant technological innovations in human history, the advent of printing (Saad & Talat, 2020). Hence, substantial changes in the field of journalism are directly linked to modern technology tools. As a result, we are rapidly nearing the epoch when computer programs can accomplish tasks previously performed by humans and even better and faster. Artificial Intelligence (AI), often known as machine intelligence (Russel & Norvig, 1995), characterizes this period, with humans consigned to the background, as robots take the lead in practically every human endeavor (Russel & Norvig, 1995). We are already in a phase where AI is assisting human skills in successfully completing and achieving various tasks. Since the 1950s, when Massachusetts Institute of Technology (MIT) computer scientist John McCarthy invented the concept of artificial intelligence, the technology has advanced in leaps and bounds around the world. (Okunola, 2018).

As artificial intelligence has had an impact on multiple sectors of society, it has also had an impact on journalism practice in a variety of ways, particularly now that journalists may utilize AI-generated smart templates to easily compile and disseminate news reports on various matters. The use of AI technologies has become an indispensable aspect of the media industry, requiring fundamental changes in the field of journalism (Galily, 2018; Loosen, 2018; Veglis & Bratsas, 2017). These technologies, as averred by Kothari and Cruikshank (2022), are potentially

revolutionizing the way news is created, curated, and disseminated, offering numerous benefits such as increased efficiency, improved personalization, and enhanced audience engagement.

A few related studies have empirically examined the integration of AI in journalism practice. For example, Guanah, Obi, and Ginikachukwu (2020) content analyzed the reportage of AI in selected Nigerian Newspapers to assess the volume and prominence given to AI by The Punch, The Guardian, and Vanguard newspapers between January to December 2019. The study found that only 64 AI-related stories appeared in the selected newspapers throughout 2019. Most of the stories were in photograph form, and the newspapers did not give that prominence to artificial intelligence stories. They concluded that since automation may be the future, newspapers must intensify efforts to educate the public about artificial intelligence through their coverage. Additionally, Mohamed (2021) examined experts' awareness level about the possibility of integrating journalism into artificial intelligence algorithms. According to the study, journalism regarding artificial intelligence is still in its infancy, and within certain bounds, writing style remains the most important factor. Also, according to Ndiomewese (2017) and Olanrewaju (2018), Nigerian journalists refrain from using artificial intelligence in their newsrooms. These scholars opine that Nigerian journalists will need at least eleven years to catch up to the rest of the world regarding artificial intelligence. This argument is further buttressed by Nwanyanwu and Nwanyanwu (2021), as evidenced by the country's late adoption of technical improvements, as seen by her failure to implement a digital media switchover system for several years. Conversely, Okocha and Ola-Akuma (2022), in their study, examined journalists' perception of how robot journalism can (or has) transformed journalism. The quantitative study revealed that although most Nigerian journalists are aware of the idea of robot journalism, they think Nigerians still need to be ready to accept it.

Thus, while AI may have been fully embraced in some countries (Jung, Song, Kim Im & Oh, 2017; Newman, 2018), there is little or no empirical data showing whether journalism in developing countries, such as Nigeria, has begun feeling the wave of artificial intelligence for technologically advanced journalistic practices and newsrooms dynamics. Therefore, this study examines the extent of awareness and adoption of AI journalism among journalists in Lagos and Kwara States. It becomes

necessary to avail researchers and media stakeholders' insights in gauging the level of preparedness for integrating AI technologies in the newsrooms. It will also help design targeted interventions and initiatives to facilitate the smooth transition towards AI-enabled journalism.

The specific objectives of the study are to examine the level of awareness of artificial intelligence journalism among Lagos and Kwara States journalists, investigate the extent to which journalists in Lagos and Kwara States are adopting artificial intelligence in their journalism practice, and identify the perceived impact of the adoption of artificial intelligence in journalism practice among Lagos and Kwara States journalists. The study focuses on Lagos and Kwara States because, in the first place, Lagos is the hub and center of attraction for journalism practice in Nigeria, accounting for the most significant number of media organizations in Nigeria. As a result, new developments in journalism practice are most likely to be championed in Lagos. Also, the northern angle to adopting artificial intelligence in journalism practice in Nigeria is necessary, hence the inclusion of Kwara States. The novelty of this study lies in the fact that no prior research on AI journalism has specifically focused on these states within this research.

The study is hinged on the diffusion of innovations theory, which attempts to explain how, why, and at what rate new ideas and technology (innovation) spread. Everett Rogers identified five characteristics of innovations that explain why some innovations succeed and spread while others do not. They are relative advantage, compatibility with existing values and practices, simplicity and ease of use, trialability, and observable results. In other words, the application of artificial intelligence in journalism implies that existing and potential users of artificial intelligence journalism should be aware of the benefits of the innovation as well as its utility and usefulness to the theory and practice of journalism. The compatibility of artificial intelligence with the existing journalism practices (compatibility; complexity) and ease of use and implementation are the most essential factors in the trial and subsequent adoption of the technology. Thus, if journalists fail to recognize the benefits of adopting and applying artificial intelligence in the newsroom and the transformation they may encounter, as well as the problems and barriers they may

confront when attempting to adopt artificial intelligence, that means they are more likely to show less passion and dedication to its adoption.

**Methodology**

The survey research method is considered appropriate in this study of the awareness and adoption of artificial intelligence among Lagos and Kwara States journalists. This is because of the method's versatility in gathering information from individuals and groups on a wide range of topics, including behaviors, preferences, attitudes, and opinions (Sharma, 2018). The population for this study is the entire registered journalists in Lagos and Kwara States comprising 6,160 registered journalists. According to the statistics from the Nigerian Union of Journalists (NUJ) secretariats, 5,945 registered journalists are in Lagos and 215 in Kwara State. Hence, using Taro Yamame's statistical formula, a sample size of 376 was determined, and copies of the questionnaire were proportionally distributed using the sampling frame. Out of the 376 copies of the questionnaire administered to journalists chosen through a simple random technique, 360, representing 96 percent of the sample size, were correctly filled and returned and thus were used for analysis. The study adopted a five-point Likert scale on statements that measure the level of awareness, adoption, and perceived impact of AI among Lagos and Kwara state journalists. The interval in this scale is 0.8; the lower limit is one while the upper limit is 5. As a result, 1.0 to 1.8 means Strongly Disagree; 1.8 to 2.6 means Disagree; 2.6 to 3.4 means Undecided; 3.4 to 4.2 means Agree, while 4.2 to 5.0 means Strongly Agree.

**Findings**

Table 1: Demographic Characteristics of Respondents

| Gender | Frequency | Percentage |
|---|---|---|
| Male | 181 | 50.3% |
| Female | 179 | 49.7% |
| Total | 360 | 100% |

| Age | Frequency | Percentage |
|---|---|---|
| 20-29 years | 105 | 29.2% |
| 30-39 years | 90 | 25.0% |
| 40-49 years | 95 | 26.4% |
| 50-59 years | 67 | 18.6% |
| 60-69 years | 2 | 0.6% |

| 70 years and above | 1 | 0.3% |
| Total | 360 | 100% |

| Qualifications | Frequency | Percentage |
| --- | --- | --- |
| PhD | 25 | 6.9% |
| M.Sc/M.Ed/M.A/MPR | 33 | 9.2% |
| B.Sc/B.A/B.L | 174 | 48.2% |
| HND | 112 | 31.1% |
| NCE/OND | 14 | 3.9% |
| Diploma/Grade | 1 | 0.3% |
| SSCE | 1 | 0.3% |
| Total | 360 | 100% |
| Years of experience | Frequency | Total |
| 1-5 | 79 | 21.9% |
| 6-10 | 82 | 22.8% |
| 11-15 | 64 | 17.8% |
| 16-20 | 34 | 9.4% |
| 21-25 | 69 | 19.2% |
| 26-30 | 14 | 3.9% |
| 31-35 | 14 | 3.9% |
| 36-40 | 2 | 0.6% |
| 41 years and above | 1 | 0.3% |
| Missing | 1 | 0.3% |
| Total | 360 | 100% |

| Beat/Desk | Frequency | Percentage |
| --- | --- | --- |
| Politics | 45 | 12.5% |
| Education | 80 | 22.2% |
| Economy/Finance | 31 | 8.6% |
| Sport | 70 | 19.4% |
| Agriculture | 61 | 16.9% |
| Health/Medical | 31 | 8.6% |
| Court/Judiciary | 18 | 5.0% |
| Science/Tech | 22 | 6.1% |
| Unspecified | 2 | 0.6% |
| Total | 360 | 100% |

The table presents the omnibus demographic data of the respondents. On their gender, the table shows that the respondents are almost equally divided (Male = 50.3%, Female = 49.7%). Also, more than half of them are less than 40 years old (54.2%), and another group aged between 40 and 50 years accounts for a quarter of the respondents (26.4%). Those that are almost 60 years accounts for about 20%. The educational qualification of the journalists indicates that about half of them are university graduates (48.3%). Another group of 31.1% have HND while 9.2% have up to master's degree and another group of 6.9% even schooled up to Ph.D level. The

table illustrates further that in terms of their years of experience as journalists, about two-thirds of the respondents have worked as journalists for up to 15 years, while a quarter of them also have 25 years. However, some have become veterans, working as journalists for up to 40 years and counting. More respondents work in newspaper houses (46.7%) than those who work in television stations (37.2%) and online media platforms (16.1%). They work in four critical desks in their media organizations, namely, politics (12.6%), Education (22.3%), Sport (19.6%), and Agriculture (17.0%). Other beats follow at a distance. However, the respondents are mainly freelancers (41.2%) and about a quarter of them are self-employed or independent journalists (25.4%). Only 33.4% of them work full-time as journalists.

Table 2:
Level of Awareness of AI among Lagos and Kwara States Journalists

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Artificial intelligence is a computer system programme | 360 | 1 | 5 | 4.453 | 0.83799 |
| Journalists talk about artificial intelligence and its application in journalism | 360 | 1 | 5 | 3.682 | 0.93433 |
| I am aware of artificial intelligence and its relevance in journalism practice | 360 | 1 | 5 | 3.475 | 1.14912 |
| I know about artificial intelligence, but I became more knowledgeable about it when I attended a conference | 360 | 1 | 5 | 3.51 | 1.14329 |
| I know about artificial intelligence adoption during news gathering | 360 | 1 | 5 | 3.823 | 1.15289 |
| I have read about artificial intelligence on the Internet | 360 | 1 | 5 | 3.52 | 1.15922 |
| I am aware that artificial intelligence has a lot of values to journalism practice | 360 | 1 | 5 | 3.626 | 1.03691 |
| Artificial intelligence is a contemporary approach to journalism practice | 360 | 1 | 5 | 3.615 | 1.04393 |
| Artificial intelligence has the potential to evolve quality job performance in terms of accuracy, precision, speed and competitiveness | 360 | 1 | 5 | 3.798 | 1.27142 |
| Valid cases | 360 | | | | |

From Table 2 above, out of the nine measuring statements, only the first statement attained the mean coefficient of 4.4526. This indicates that people Strongly Agree artificial intelligence is a computer system program. However, the mean coefficients of other statements show that the respondents also agree with them. However, more emphasis was placed on artificial intelligence being a computer system program. The Standard Deviation further explains how dispersed the data is in

relation to all the statements made. The Standard Deviation shows that it is lower than the Mean across all the statements. In some cases, they are even lower than 1. This low Standard Deviation indicates that data are clustered closely around the Mean, making it more reliable for generalizations.

Concerning the first research question, the results of Mean and Standard Deviation indicate a high level of awareness of artificial intelligence journalism among Lagos and Kwara States journalists. These answer the first research question: What is the level of awareness of artificial intelligence journalism among Lagos and Kwara States journalists? Therefore, as shown in their responses, it can be affirmed that journalists in Lagos and Kwara States are aware of artificial intelligence journalism in their respective states of practice.

Table 3: Level of Adoption of AI among Lagos and Kwara State Journalists

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Artificial intelligence helps in detecting and uncovering misleading information and fake news | 360 | 1 | 5 | 4.1117 | 0.94607 |
| Artificial intelligence journalism is automation | 360 | 1 | 5 | 3.6369 | 0.90871 |
| Artificial intelligence produces a tremendous amount of news stories | 360 | 1 | 5 | 3.5866 | 1.13613 |
| Artificial intelligence produces content compatible with the audience. | 360 | 1 | 5 | 3.8616 | 1.10397 |
| Artificial intelligence increases the momentum of journalists' reports, creativity, and their ability to draw the attention of the audience. | 360 | 1 | 5 | 3.6927 | 0.97619 |
| I am strategically positioned for the best opportunities in the adoption of artificial intelligence in order to be highly competitive. | 360 | 1 | 5 | 3.581 | 1.02237 |
| Adoption of artificial intelligence in journalism practice is becoming inevitable | 360 | 1 | 5 | 3.5866 | 1.04361 |
| I adopt artificial intelligence in my journalism practice | 360 | 1 | 5 | 3.7115 | 1.26011 |
| Valid N (listwise) | 360 |  |  |  |  |

Table 3 presents the statements that measure the extent to which journalists in Lagos and Kwara States adopt artificial intelligence in their journalism practice. Using the decision rule of 0.8 intervals where the lower limit is one and the upper limit is 5 to establish the findings, the values of Mean across the eight measuring statements are between 3.4 and 4.2, which indicates agreement. Only the first statement, "Artificial intelligence helps in detecting and uncovering misleading information and fake news," falls between 4.2 and 5.0, indicating a strong agreement

by the journalists. The Standard Deviation result across all statements indicates that data are clustered closely around the Mean and are reliable.

In answering the second research question, the results of Mean and Standard Deviation indicate that journalists in Lagos and Kwara States adopt artificial intelligence in their journalism practice. To an extent, it is partly true and not completely. This also means that not all journalists adopt artificial intelligence in their journalism practice. This answers the second research question, "to what extent do journalists in Lagos and Kwara States adopt artificial intelligence in their journalism practice?" Therefore, although journalists in Lagos and Kwara States are well aware of artificial intelligence innovation in journalism practice, only a few of them adopt it in their day-to-day practice.

Table 4: Perceived impact of AI adoption on the Journalism profession

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Artificial intelligence increases speed of delivery in journalism practice. | 360 | 1 | 5 | 4.1859 | 0.8921 |
| There is optimal level of precision in the adoption of artificial intelligence journalism practice | 360 | 1 | 14 | 3.6479 | 1.05094 |
| Adoption of artificial intelligence makes Nigeria journalists highly competitive globally. | 360 | 1 | 5 | 3.6225 | 1.13673 |
| Elimination of human errors | 360 | 1 | 5 | 3.7978 | 1.21196 |
| Elimination of sentiments and bias in media report | 360 | 1 | 5 | 3.6994 | 1.0836 |
| Artificial intelligence is creating new forms of investigative reporting | 360 | 1 | 5 | 3.4576 | 1.11628 |
| Artificial intelligence helps to verify and fact-check news report | 360 | 1 | 5 | 3.7725 | 1.06225 |
| Artificial intelligence is creating a personalized user experience | 360 | 1 | 5 | 3.8908 | 1.16929 |
| Artificial intelligence is redefining copyright rules | 360 | 1 | 5 | 3.6404 | 1.06411 |
| Artificial intelligence improves ethical implications | 360 | 1 | 5 | 3.435 | 1.10754 |
| Artificial intelligence kills journalists' level of ingenuity, creativity and skillfulness | 360 | 1 | 5 | 3.6106 | 1.19324 |
| Artificial intelligence minimises social and professional networking and inadequate of journalists | 360 | 1 | 5 | 3.6292 | 1.32054 |
| Valid N (listwise) | 360 | | | | |

Table 4 presents the statements that measure the likely impacts of the adoption of artificial intelligence journalism practice as perceived by Lagos and Kwara States journalists. The table shows that 12 measuring statements are used, and the values of Mean across the 12 statements are between 3.4 and 4.2, which indicates agreement. Only the first statement records a coefficient between 4.2 and 5.0, indicating a strong agreement by the respondents, based on the decision rule applied in the previous

tables. The table also shows a low Standard Deviation across all the statements. In some cases, they are even lower than 1. This is an indication that data are clustered closely around the Mean and it is reliable. It shows a normal data distribution.

All these point to that adopting artificial intelligence in journalism practice among Lagos and Kwara States journalists has both positive and negative impacts. For instance, on the negative side, the respondents agree that artificial intelligence kills journalists' ingenuity, creativity and skillfulness and that it can minimize journalists' social and professional networking and inadequate professionalism. On the positive side, it can increase the speed of delivery in journalism practice and ensure optimal precision in adopting artificial intelligence journalism practice. Similarly, when adopted, artificial intelligence can make journalists highly competitive globally. Therefore, these are the likely impacts of adopting artificial intelligence journalism practices among Lagos and Kwara journalists, as indicated by the results.

**Discussion of Findings**

Table 1 shows a high level of artificial intelligence journalism among Lagos and Kwara States journalists. The high level of their awareness is not disconnected from the fact that the respondents are journalists who, as a result of their profession, are well informed on the trending innovation in the profession. Interestingly, the discovery of a high level of artificial intelligence awareness among Lagos and Kwara States journalists aligns with Bossey, Osife-Kurex, and Agbo (2022), who also revealed that there is a high level of awareness of artificial intelligence journalism among journalists, especially in the area of fact-checking. Similarly, Okocha and Ola-Akuma (2022) discovered that most Nigerian journalists are familiar with robot journalism. Moreover, the reason for the high-level awareness of artificial intelligence journalism among Lagos and Kwara States journalists is simply because journalism evolved and thrived around the advancement of technology.

The data presented in Table 2 reveal that only a few journalists in both states (Lagos and Kwara) adopt artificial intelligence despite their high level of awareness about the innovation. These findings affirm the discovery of Saad and Talat (2020) that only a few limited media organizations employ automated journalism across the

globe. Conversely, Nwanyanwu and Nwanyanwu (2021) also affirmed that journalists in Nigeria are yet to embrace artificial intelligence in their journalism practice. However, in divergence from this outcome, Kent (2015) found that many news organizations in developing countries have made it a routine to use artificial intelligence to write news.

The findings from the data presented in Table 3 reveal that the adoption of artificial intelligence journalism practice among Lagos and Kwara journalists has both positive and negative impacts. This discovery supports Nwanyanwu and Nwanyanwu's (2021) claim that the adoption of artificial intelligence will enhance productivity, but in the same vein, it could pose particular challenges to the profession. Likewise, these scholars affirmed that adopting artificial intelligence journalism will pose both professional and ethical challenges to the profession. Conversely, Nsude (2020) noted that technical and government challenges may negatively impact adopting artificial intelligence in journalism practice in Nigeria. As with any complex system, errors are bound to happen, and with the adoption of artificial intelligence in journalism, those errors can have serious consequences. This study, therefore, buttresses the findings of Nwanyanwu and Nwanyanwu (2021) and Nsude (2020) on the negative impact of the adoption of artificial intelligence journalisms. This study also found that artificial intelligence will kill journalists' ingenuity, creativity, and skillfulness, and can minimize social and professional networking and inadequate journalists. However, on the positive side, journalists in the two states (Lagos and Kwara) under study believe that adopting artificial intelligence in journalism will increase the speed of delivery in journalism practice and ensure optimal level of precision in journalism practice.

**Conclusion and Recommendation**

This study has no doubt surveyed the awareness, adoption, and perceived impact of artificial intelligence journalism among Nigerian journalists, specifically in Lagos and Kwara States. This study affirms that artificial intelligence is one of the most discussed, adored, and anticipated current developing technologies, with new and exciting applications coming regularly. Artificial intelligence is becoming more widespread, with a range of applications and benefits. As a result of this, journalism around the world is undergoing a historic change and tremendous advancement in

digital technology. Importantly, this advancement is another facet of technological progression that has significantly changed media firms' organizational structures and functions. This study held on to the fact that the application of artificial intelligence in journalism implies that existing and potential users of artificial intelligence should be aware of the benefits of the innovation as well as its utility and usefulness to the theory and practice of journalism, as suggested by Diffusion of Innovation Theory.

Against this backdrop, this study recommends that journalists use their various media platforms to create a more robust awareness of the benefits of artificial intelligence in journalism. Such awareness might capture the interest of other media stakeholders, including the government, and make them invest in artificial intelligence in different areas.

Also, journalists must be trained in artificial intelligence journalism, which should be done in close collaboration between journalists and software engineers. This implies that experts organizing conferences, symposia, discussions, and seminars, among others, will train the journalists on how to better utilize artificial intelligence to increase capacity building in the profession and tackle any discrepancies that might come from adopting the technology. In this case, to further strengthen the successful adoption of artificial intelligence journalism in Lagos and Kwara States and Nigeria in general, the government should show interest in the necessity for the deployment of artificial intelligence in Nigeria. This interest should be demonstrated by establishing an agency or a commission for artificial intelligence in Nigeria. Also, such interest should be further demonstrated by providing the country with regular power supply and other necessary infrastructure.

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