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IMPACT OF AI-GENERATED CONTENT ON JOURNALISM PRACTICE: A STUDY OF PRACTICING JOURNALIST IN ENUGU, NIGERIA

Godwin Okoye Chiwoke
Justina N. Obi
Odinaka Egele

Authors' Affiliation

Department of Mass
Communication,
Caritas University, Enugu,
Nigeria

Abstract

This study investigates the impact of AI-generated content on journalism practices in Enugu State, Nigeria. The research employed a survey design, sampling 117 registered journalists under the Nigerian Union of Journalists (NUJ), Enugu State Chapter. The study aimed to assess journalists' exposure to AI tools, their use of AI-generated content in professional practice, perceived benefits, and challenges faced in its application. Findings reveal high awareness and usage of AI tools among journalists, with ChatGPT being the most recognized (79.5%). The majority of respondents (99.1%) use AI-generated content to some degree in their work, primarily for research (81%) and writing (50%). Key benefits identified include time and resource savings (88.9% agreement) and increased efficiency and productivity (72.4% agreement). However, challenges such as lack of awareness or knowledge (58.9%), limited access to AI tools (59%), and concerns about content quality and reliability (55.5%) were also highlighted. The study concludes that while AI-generated content has become integral to journalistic practice in Enugu State, there is a need for a balanced approach that leverages AI's benefits while addressing its limitations and ethical implications. Recommendations include comprehensive training programs, improved access to AI tools, development of ethical guidelines, and further research to track long-term impacts. These findings contribute to the understanding of AI's role in journalism and provide insights for media professionals, organizations, and policymakers in navigating the evolving landscape of AI in journalism.

Keywords:

Artificial Intelligence,
Ai-Generated Content,
Journalism Practice,
Practicing Journalist

Introduction

We are fast approaching an era whereby machines (robots) perform tasks previously performed by humans, sometimes even doing them faster, better, and with little to no supervision. Artificial Intelligence (AI), commonly referred to as machine intelligence, will rule our era, pushing humans to the sidelines as robots advance in practically every endeavor. We are currently living in an era where artificial intelligence (AI) supports human abilities to successfully realize and complete a variety of activities. Since computer scientist John McCarthy of Massachusetts Institute of Technology (MIT) first used the phrase "Artificial Intelligence" in the 1950s, technology has advanced rapidly all around the world, according to Guanah, Agbanu, and Obi (2020).

According to Hosanagar (2017), it is difficult to talk about technological advancement these days without mentioning artificial intelligence (AI), and the media constantly spreading the myth that robots will replace people in the workforce. Entrepreneur and tech innovator Elon Musk was quoted by Hosanagar (2017) as cautioning that AI might spell the end for humans. According to Sherman (2018), artificial intelligence (AI)-powered robots and machinery will likely handle half of all worker productivity by 2025.

The introduction of AI has impacted many facets of society, and it has a significant impact on journalism as well, particularly now that journalists may use AI to produce content. Any text, image, audio, or video created by artificial intelligence (AI) systems, including speech synthesis (SS), computer vision (CV), natural language processing (NLP), machine learning (ML), and deep learning (DL), is referred to as AI-generated content.

Throughout human history, journalism has been a highly significant and ancient method of communication. Automating or enhancing news output with AI-generated material is one of the most common uses of AI in journalism. Using natural language production techniques, artificial intelligence (AI) systems can produce content based on data, including facts, figures, and events. By doing this, journalists may cover more topics and viewpoints, work more efficiently and accurately, and save time and money. In this regard, Reuters creates headlines, summaries, and bullet points based on financial data using an AI tool called Lynx Insight (Davies, 2018).

The Associated Press creates hundreds of automated stories on subjects including sports, economics, and elections using an AI program called Wordsmith (Miller, 2014). The Washington Post writes brief pieces on subjects including high school football, congressional elections, and the Olympics using an AI program called Heliograf (Moses, 2017).

Statement of the Problem

Nonetheless, the development of AI is a double-edged sword with a lot of benefits and drawbacks. In addition, journalism faces a number of difficulties from AI-generated material, including issues with quality, trustworthiness, ethics, accountability, and autonomy. According to Diakopoulos and Koliska (2017), artificial intelligence (AI)-generated content has the potential to compromise various aspects of information quality and accuracy. It can also generate fake or misleading content, undermine credibility and trustworthiness, raise ethical and moral issues by violating privacy or human rights, challenge accountability and responsibility by obscuring content. A substantial number of job losses, idleness, and redundancies are possible outcomes of the growing sophistication of AI applications in the media sector. This field has received less attention, especially in empirical research conducted in developing nations. There have only been a few research conducted in this field, but several of them stand out, including those by Salazar (2018), Guanah (2021), Guanah, Agbanu and Obi (2020), Okiyi and Nsude (2020), and Udoh, Nsude, and Oyeleke (2022). As far as the researchers are aware, no research has examined how AI-generated content affects journalism in Enugu, Nigeria. The purpose of this study is to fill in this information gap.

Objectives of the study

The Specific objectives of this study were to:

- 1 find out the extent to which practicing journalists in Enugu State are exposed to AI tools
- 2 examine how journalists in Enugu State use AI-generated content in their professional practices.
- 3 find out how AI-generated content has enhanced journalism practice in Enugu state.
- 4 find out the challenges faced by practicing journalists in Enugu State in the application of AI-generated content in the journalism profession.

Literature Review

The Artificial Intelligence (AI)

At a computing conference, the term "artificial intelligence" was first used in 1956. Prominent scientists and mathematicians were invited by John McCarthy of Dartmouth University to talk on artificial intelligence (Pan, 2016). On the presumption that a machine can accurately describe and mimic every aspect of learning or any other attribute of intelligence, they suggested a two-month, ten-person study of artificial intelligence at Dartmouth College. Computers could already speak English and solve algebraic equations at that point. Artificial intelligence has evolved from an academic field to become a vital component of numerous social and commercial technologies, including voice-activated assistants, driverless cars, speech recognition, and medical diagnosis (Hassani, Silva, Unger, TajMazinani, & Mac Feely, 2020).

It is difficult to define intelligence, and many writers have put forth varied interpretations of it (Legg & Hutter, 2007). For instance, Jensen (1998) adhered to Bereiter's theory that intelligence is what we employ in unfamiliar situations, whereas Colom et al. (2010) accepted Snyderman and Rothman's theory that intelligence is a general mental capacity that includes learning, reasoning, and problem-solving. In his concept of intelligence, Gottfredson also took experience and quick learning into account (Gottfredson, 1997). According to these criteria, human intelligence encompasses more abilities than are typically included in broad definitions. Because of these varied skill sets, humans have an innate inclination to test and explore their abilities. How we apply these abilities defines our level of intellect.

The selection of knowledge (data) is important since it influences the outcomes' quality and implications (Muller, 2018). Through intelligent manipulation of their surroundings, people can enhance their circumstances, relationships, or living conditions. In the 1950s, human intelligence made it possible for humans to see the potential of artificial intelligence (AI), which is the capacity to teach a computer to behave intelligently (Buchanan, 2006). Nowadays, one of the key innovations of the fourth industrial revolution is artificial intelligence (AI) (Jeon & Suh, 2017). According to Buchanan (2006), artificial

intelligence (AI) is the capacity to program computers and other technology-enabled devices to comprehend the n

AI-generated Content

Text, images, and videos produced by artificial intelligence algorithms that mimic or resemble content produced by people are referred to as AI-generated content (Goodfellow et al., 2014). Recent advancements in machine learning and deep learning techniques have led to an increase in the realism and complexity of AI-generated content, prompting concerns regarding its possible uses and ethical ramifications (Chesney & Citron, 2019). Artificial intelligence (AI) has produced realistic synthetic data for research and has been applied in a variety of fields, including journalism, advertising, and the arts (Labajová, 2023). But the growing acceptance of AI-generated material has also raised concerns about misuse, including the production of deepfakes or the spread of false information, both of which have the potential to have detrimental effects on society (Radford, Wu, Child, Luan, Amodei, & Sutskever, 2019). AI-generated content has the potential to transform content creation by increasing its speed, efficiency, and personalization.

In this regard, AI-powered chatbots can offer personalized responses to consumer inquiries, while AI-generated content can automatically write news articles or product descriptions. However, the creation of such content presents moral and legal difficulties, including the possibility of bias in automatically generated content, the dissemination of inaccurate or dangerous information, and the impact of AI-generated content on employment and human creativity. These issues will be covered in more detail throughout the thesis.

To better understand the concept of AI-generated content, we will use a conceptual framework that categorizes AI-generated content based on two dimensions especially in journalism: the input data and the output format. The input data refers to the type and source of information that is used by the AI system to generate content. The output format refers to the type and mode of presentation that is used by the AI system to deliver content. Based on these two dimensions, we can classify AI-generated content into four types: data-driven, user-driven, hybrid, and creative.

- a) **Data-driven:** This type of AI-generated content is based on structured or unstructured data that is collected from various sources, such as statistics, facts, events, or documents. The output format is usually text-based or visual-based, such as headlines, summaries, bullet points, charts, graphs, or maps. The main purpose of this type of AI-generated content is to automate or augment news production by saving time and resources, increasing efficiency and accuracy, and covering more topics and perspectives. Examples of data-driven AI-generated content include Reuters' Lynx Insight, which generates headlines, summaries, and bullet points based on financial data (Davies, 2018); The Associated Press' Wordsmith, which produces thousands of automated stories on topics such as sports, business, and elections (Miller, 2014); and The Washington Post's Heliograf, which writes short articles on topics such as high school football, congressional races, and the Olympics (Moses, 2017).
- b) **User-driven:** This type of AI-generated content is based on user preferences, behavior, or feedback that is collected from various sources, such as queries, clicks, ratings, or comments. The output format is usually text-based or audio-based, such as answers, information, opinions, recommendations, or conversations. The main purpose of this type of AI-generated content is to create personalized or interactive content for audiences by engaging and retaining them, increasing relevance and diversity, and fostering dialogue and participation. Examples of user-driven AI-generated content include The Guardian's ChatGPT, which creates interactive chatbots that can answer questions, provide information, or offer opinions on various topics (Hern, 2020); The New York Times' Perspective, which creates personalized newsletters that recommend articles based on user interests (Scire, 2021); and BBC's Juicer, which creates dynamic web pages that adapt to user queries on topics such as Brexit or climate change (BBC News Labs, 2016).
- c) **Hybrid:** This type of AI-generated content is based on a combination of data and user input that is collected from various sources, such as statistics, facts, events, documents, queries, clicks, ratings, or comments. The output format is usually text-based, visual-based, or audio-based, such as stories, reports, analyses, visualizations, or podcasts. The main purpose of this type of AI-generated content is to generate new forms of storytelling or expression by integrating data and user input in novel and creative ways. Examples of hybrid AI-generated content include Quartz's Bot Studio, which generates stories based on data and user feedback using chatbots (Bilton, 2017). The Wall Street Journal's Blue Feed/Red Feed, which generates visualizations based on data and user preferences showing how Facebook's news feed algorithm creates political polarization (Keegan, 2019); and The Economist's AI podcast, which generates podcasts based on data and user queries using speech synthesis (Beckman, 2018).
- d) **Creative:** This type of AI-generated content is based on no or minimal input data or user input that is collected from various sources, such as random numbers, noise, or keywords. The output format is usually text-based, visual-based, audio-based, or video-based, such as poems, stories, songs, paintings, or movies. The main purpose of this type of AI-generated content is to demonstrate the artistic or aesthetic potential of AI systems by generating content that is original, imaginative, or surprising. Examples of creative AI-generated content include Open AI's ChatGPT, which generates coherent and fluent texts based on a few words or sentences (Radford, Wu, Child, Luan, Amodei, & Sutskever, 2019); Google's Deep Dream, which generates psychedelic images based on neural network activations (Mordvintsev, Olah, & Tyka, 2015); and IBM's Watson Beat, which generates music based on mood, style, or genre (Nay, 2016).

Artificial Intelligence (AI) and Journalism

Technology has played a significant role in journalism practice and will continue to do so. Vaglis

and Bratsas (2017) assert that sophisticated technological tools have a direct bearing on the significant transformation of the journalism industry. Consequently, there have been significant changes in the journalism industry as a result of the adoption of Artificial Intelligence (AI) technology (Galily, 2018). According to Omebring (2016), technology can be used as an objective ally to alter journalistic practices and skills. Today, producing media requires technology as a necessary component. How does technology fit into the news production process? Mark, Meritxell, Jon, and George (2017) state that artificial intelligence (AI) is helping more and more with reporting, content creation, distribution, and audience interaction, among other things. In recent times, tools for fact-checking, crowdsourcing, and brainstorming have been developed to help with data information gathering, particularly with structuring relevant data. Automation is a key tool that helps modern newsrooms compete favorably in the news industry.

Readers can now read stories written totally by journalists who do not have a human form, claim Ali & Hassoun (2019). Nearly three-quarters of respondents to a recent Reuters research titled "Media, Trends and Technology Expectations in 2018"—which featured a survey of numerous media outlets—stated that they employ artificial intelligence in their output (Newman, 2018). However, they also create projects to increase their use in terms of bettering content, boosting marketing effectiveness and economic viability, automating information validation within the content, or accelerating the process of classifying information contained in a massive stream of data. The study "Intrusion of software robots into journalism" by Jung et al. (2017). The readership tended to trust journalistic materials written by software more than those authored by professionals, according to the public's and journalists' opinions of news published by algorithms and human journalists. Zangana (2017) concludes that the following fundamental idea summarizes the relationship between technology and content creation in contemporary newsrooms: "This tendency in journalism proves the changing character of the newsroom staff, where programmers are working steadily more closely with journalists and where journalists become programmers and vice versa."

Empirical Review

"Mainstream media and artificial intelligence awareness amongst residents of Asaba metropolis, Delta state, Nigeria" is the title of a study conducted by Guanah (2021). The study's objective was to provide academic understanding of the mainstream media's (radio, television, and newspapers) role in raising awareness of artificial intelligence (AI) operations. The study had three main goals: it assessed how much Asaba locals knew about artificial intelligence (AI); how much the media informed the public about AI; and how these findings would affect people's personal or professional lives. The study's foundation was provided by the diffusion of innovation theory; to gather data from respondents, a questionnaire and oral in-depth interviews were employed. The majority of respondents are unaware of the implications of AI on themselves, their jobs, and the society they live in, according to the quantitative study's findings, which also revealed that respondents had a low level of awareness regarding AI and that the media is not doing enough to inform the public about how AI works. The report suggested, among other things, that awareness of AI be raised through all accessible channels, including the media and opinion leaders.

This study and the previous one are comparable in that they both focused on artificial intelligence awareness generation and were conducted in Nigeria. While the study under evaluation used Delta State citizens as its respondents, the current study's respondents were journalists in the state of Enugu.

A study named "Adopting Artificial Intelligence to Journalistic Practices in Nigeria: Challenges and Way Forward" was conducted by Okiyi and Nsude in 2020. The goal of this conceptual study was to obtain results through the use of qualitative approaches. The information needed for the investigation was provided by the opinions and viewpoints of experts. The study's main goal was to identify potential obstacles to the effective deployment of AI to Nigerian media practices. The study used the theories of technological determinism and media richness to examine how communication technologies affect society and how they affect production. According to the report, AI is important for journalism if newsrooms want to stay competitive and provide job possibilities. Notwithstanding its benefits, AI

presents a variety of difficulties that have an impact on newsroom operations. Certain issues may be technological, but other issues are fundamental and have to do with governance. Furthermore, the results showed that the development and dissemination of the application of AI to journalism in Nigeria and other sub-Saharan African nations is hampered by professional and fundamental concerns, such as a lack of basic knowledge and practice. The study suggests that in order to guarantee that AI is used to promote productivity in the industry, governments and journalists themselves need to reframe their views on the technology's significance. There is a relationship between the evaluated study and this one. Artificial intelligence adoption and use are of interest to both studies. Journalists working in Nigeria's Enugu State were not included in the evaluated study, which focused on Adopting Artificial Intelligence to Journalistic Practices in Nigeria: Challenges and Way Forward.

The study "Artificial Intelligence and Journalism Practice in Nigeria: Perception of Journalists in Benin City, Edo State" was conducted in 2020 by Guanah, Agbanu, and Obi. The research methods for gathering data for the study were in-depth oral interviews and surveys, both of which were based on the mediamorphosis theory. The population consisted of the 254 journalists who were registered with the Nigerian Union of Journalists (NUJ), Benin City Chapter; Cozby's Precision of Estimate table was used to get the sample size, which was 152. The study's conclusions included the consensus among Benin City's journalists that automated journalism—the use of AI-driven media applications—is preferable to the present, "manually" conducted reporting methods. It came to the conclusion that automation is the way of the future and that Nigerian journalists must get ready for and embrace artificial intelligence (AI) if they hope to avoid being left behind in this age of automation. Among its recommendations was the inclusion of technology-driven curricula in journalism schools, which would adequately train aspiring journalists for the use of AI in the workplace in the future.

The level of understanding of artificial intelligence for news production among journalists in Ebonyi State was investigated by Udoh, Nsude, and Oyeleke in 2022. The responders were Ebonyi state's working journalists. The 250 registered journalists listed in the

Nigeria Union of Journalists (NUJ) database for Ebonyi State made up the study's population. The researcher collected data by using the survey research approach. For data analysis, straightforward frequency and percentage tables were employed. The mediamorphosis and diffusion of innovation theories served as the study's pillars. Among other things, the survey discovered that every journalist in Ebonyi State registered under the Nigerian Union of Journalists (NUJ) is aware of the usage of AI in news production. This study and the previously reviewed one are comparable in that they both focused on raising public knowledge of artificial intelligence and were conducted in Nigeria. This research concentrated on journalists in Enugu state as its respondents, whereas the study under evaluation took into consideration journalists in Ebonyi state.

Theoretical Framework

The Diffusion of Innovation Theory served as the theoretical basis for this investigation. One of the theories that is thought to be pertinent to this work is the diffusion of innovation theory. Everett M. Rogers created the hypothesis in 1962. According to this hypothesis, new technological innovations must pass through a number of stages before becoming widely used. It goes on to say that while most people will be aware of the new idea, not everyone will be able to accept it after hearing about it. Some people will try new things more slowly than others, and some people will acquire them much more slowly still. This theory is pertinent to the study because it addresses how news production is currently evolving and how the use of AI into news creation might improve and streamline the dissemination of information.

Methodology

The researchers adopted the survey research method because the design allows respondents to express their opinions and provide sensitive information without fear of judgment or consequences. According to the data provided by the Nigerian Union of Journalists (NUJ), Enugu State Chapter, the population of the registered practicing journalists is two hundred and ten (210). For this study, the census method was adopted since the study population is small and manageable this is to ensure a representative sample size. As such, the sample size

for the study was 210. The purposive sampling technique was adopted and close ended questions were drafted in simple English language therefore making answers easy to quantify. The questionnaire was given to an expert in the field of mass communication to validate. For the reliability of the questionnaire, a test-retest method was employed. 10 persons were asked to complete the questionnaire twice, with a two-week interval between administrations. The responses were analysed using the test-retest reliability coefficient to determine the consistency of the instrument. The result was used to correct any error and give more insights on some objectives. The questionnaire was considered good enough and acceptable. Data was collected through self-administered questionnaire distributed to participants in selected communities in Enugu, Nigeria. Data collected through the questionnaire were analysed using the simple frequency and percentage method.

Discussion of Results/Findings

Research question one: *To what extent are practicing journalists in Enugu State exposed to AI tools?* The findings reveal a high level of awareness and usage of AI tools among the journalists in Enugu State, with ChatGPT being the most widely recognized (79.5% of respondents). This aligns with the study by Udoh, Nsude, and Oyeleke (2022), which found that all registered media practitioners in Ebonyi state were knowledgeable about the use of AI in news production. However, it contrasts with Guanah's (2021) study in Delta state, which found low awareness level about AI among residents. This discrepancy may be due to the different target populations - journalists versus general residents - suggesting that media professionals are more exposed to AI tools than the general public. The high exposure to AI tools among journalists in this study also differs from Guanah, Agbanu, & Obi's (2020) findings in Benin City, where journalists were still largely using manual reporting practices. This difference could indicate a rapid adoption of AI tools in journalism over the past few years, or regional variations in AI adoption across Nigeria.

Research question two: *How do journalists in Enugu State use AI-generated content in their professional practices?* The survey results show widespread integration of AI-generated content in

journalistic work, with 99.1% of respondents using it to some degree. This high adoption rate supports the prediction by Salazar (2018) that AI technologies would significantly affect journalism. The findings also align with Guanah, Agbanu, & Obi's (2020) conclusion that automated journalism is an improvement over current manual reporting practice. The primary use of AI for research (81% of respondents) and writing (50%) aligns with the Mediamorphosis theory, which posits that new media evolve to update and upgrade old media. AI tools are enhancing traditional journalistic tasks rather than completely replacing them, supporting Nwammuo & Nwafor's (2019) interpretation of the theory in relation to AI in journalism.

Research question three: *To what extent has AI-generated content enhanced journalism practice in Enugu State?* The perceived benefits of AI-generated content, particularly in saving time and resources (88.9% agreement), align with the advantages noted by Okiyi and Nsude (2020), who found that AI is pertinent to journalism for maintaining competitiveness and facilitating job opportunities. The high agreement on AI's ability to increase efficiency and productivity (72.4%) also supports Salazar's (2018) prediction of AI changing how the journalism profession is perceived. However, the slightly lower agreement on AI enhancing creativity (65.8%) suggests some skepticism about AI's role in more nuanced aspects of journalism. This nuanced perception wasn't captured in the reviewed empirical studies, indicating a need for more granular research on the perceived benefits of AI in journalism.

Research question four: *What are the challenges faced by practicing journalists in Enugu State in the application of AI-generated content in journalism practice?* The challenges identified in this study, such as lack of awareness, access, skills, and ethical guidelines, echo the findings of Okiyi and Nsude (2020). They highlighted similar challenges, including technical, structural, and governance issues hindering the growth of AI application in Nigerian journalism. The concern about the quality and reliability of AI-generated content (55.5% agreement) aligns with the ethical and professional issues raised by Salazar (2018). This suggests a persistent need for addressing quality control and ethical standards in AI-generated journalism across different contexts.

Recommendations

Based on the major findings of this study, the following recommendations were made:

1. Given the high awareness and usage of AI tools, particularly ChatGPT, among journalists, media organizations and journalism schools should develop comprehensive training programmes, specifically designed to focus on these popular AI tools. This will ensure that journalists can effectively and ethically use the tools they are already familiar with.
2. Considering the widespread integration of AI-generated content in journalism profession, industry leaders should develop and implement clear guidelines for the appropriate use of AI in journalism. These guidelines should address ethical considerations, transparency in AI use, and best practices for maintaining journalistic integrity while leveraging on AI capabilities.
3. As AI tools are primarily used for research and writing, newsrooms should invest in advanced AI-powered research and writing tools tailored towards journalistic purposes. This investment should be accompanied by training and re-training of journalists on how to effectively integrate these tools into the journalistic workflow while upholding fact-checking processes.
4. To address the challenges of lack of awareness, access to AI tools, and concerns about content quality, a multi-pronged approach is recommended: a) Establish partnerships between media organizations, tech companies, and educational institutions to improve access to AI tools for journalists. b) Develop ongoing professional development programs to keep journalists updated on AI advancements and applications in journalism. c) Implement robust quality control measures for AI-generated content, including enhanced fact-checking protocols and clear disclosure policies for AI-assisted content.

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