



Knowledge And Application Of Data Driven Journalism Among Journalists In Katsina State

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ABSTRACT

This paper provides an in-depth analysis of the knowledge and application of data-driven journalism among journalists in Katsina state, Nigeria. The study aims to shed light on the factors that influence the level of awareness of data-driven journalism and how it affects reporting practices and content quality. The Media Determinism Theory was used as a theoretical framework to guide the analysis of the data collected from interviews with journalists in Katsina state. The findings of the study show that training opportunities, exposure to successful examples, and editorial support significantly influence the level of awareness of data-driven journalism among journalists in the state. Moreover, the study reveals that higher level of knowledge of data-driven journalism leads to better integration of data analysis, collaboration with specialists, and improved storytelling techniques. Journalists who are more knowledgeable about data-driven journalism are better able to identify relevant data sources and use them to tell more compelling and accurate stories. Additionally, the study finds that journalists who are more knowledgeable about data-driven journalism are more likely to collaborate with data specialists, which could lead to more accurate and in-depth analysis of data. The study concludes by recommending the implementation of comprehensive training programs and fostering collaborative environments to empower journalists in navigating modern media complexities effectively. Furthermore, the study highlights the need for investment in resources and infrastructure to support the adoption of data-driven journalism in Nigeria. The findings of this study are significant, as they provide insights into the factors that influence the adoption of data-driven journalism and the benefits that could be gained from its implementation.

Keywords: data-driven journalism, media, reporting practices

INTRODUCTION

Journalists have long been utilizing data in their storytelling endeavors, evolving alongside technological advancements throughout history. The advent of computing in the 20th century opened doors for data integration into investigations, marking the dawn of a new era in journalism. In the 21st century, with the proliferation of the Internet, cloud computing, mobile devices, and open-source software, the landscape of

journalism has undergone a profound transformation, giving rise to the concept of Data Journalism (Rogers, 2012).

Rogers (2012) contends that while journalists have historically incorporated data into their narratives, data journalism transcends mere data augmentation in traditional reporting. It encompasses the creation of news applications and interactive features aimed at aiding audiences in comprehending and engaging with data-driven insights. This shift has ushered in new business models where data serves as a foundational element for generating profit, impact, and understanding, co-created with an audience increasingly empowered to participate in the journalistic process.

In Nigeria, as in other parts of the world, journalists grapple with the dual excitement and challenge of crafting compelling narratives through harnessing the vast reservoirs of data generated by our interconnected lives, businesses, and governments. The contemporary era is marked by an unprecedented deluge of data, with an estimated 2.5 quintillion bytes generated daily as of 2012, a figure doubling every 40 months. This surge in data creation, coupled with expanding sources of news dissemination, has reshaped the media landscape fundamentally (Columbia Journalism School/Tow Center for Digital Journalism, 2009).

Today, news dissemination transcends traditional newsrooms, with stories often breaking first on social networks and subsequently undergoing synthesis into contextualized journalism. Media organizations must swiftly harness data to remain relevant, as demonstrated during events like Hurricane Sandy, where public data feeds became indispensable infrastructure. Furthermore, a 2014 Supreme Court ruling emphasized the role of online databases in empowering the voting public with vital information, underscoring the pivotal role played by journalists and nonprofit organizations in maintaining such platforms (Columbia Journalism School/Tow Center for Digital Journalism, 2009).

Bounegru and Gray (2012) posit that the pertinent question concerning data journalism is not whether data, computers, and algorithms can be leveraged in the public interest, but rather how, when, where, why, and by whom. Data journalism involves treating data as a primary source, subjecting it to interrogation akin to human sources, and employing statistical analysis and visualization techniques to present insights. This approach, rooted in the extraction of knowledge from data, epitomizes the fusion of data science with journalism.

According to Rogers (2014), proficiency in data journalism necessitates honing traditional journalistic skills, understanding the societal context within which data is created, and recognizing its inherent social constructivism. A nuanced comprehension of the individuals behind the data facilitates the crafting of compelling narratives. Consequently, media organizations must adopt a multidisciplinary approach, fostering collaboration among reporters, developers, designers, and community managers to deliver impactful storytelling in an evolving media landscape.

Howard (2012) highlights the pivotal role played by pioneers in the realm of data-driven journalism, emphasizing their dedication to building collaborative newsrooms and advancing the theory and practice of data journalism. These individuals view journalistic reporting as a form of data itself, capable of being collected, analyzed, and utilized to glean insights into societal, industrial, and governmental dynamics.

Statement of the Problem

The mass media industry in Africa, particularly in Nigeria, grapples with a myriad of challenges, including resistance from entrenched public officials, reliance on paper records, and the absence of access to information laws. Direct threats and physical violence targeting journalists further exacerbate the situation. The urgent need to equip journalists with data-driven journalism skills has intensified due to the digital disruption reshaping media models, impacting African nations as well. Nigeria's constitution recognizes the media as the "fourth estate of the realm," highlighting its role in holding the government accountable and checking abuses of power. Consequently, there's a growing demand for government-related information, with citizens, including journalists, increasingly turning to the internet for data on service delivery, performance assessment, and budgetary spending.

Research underscores citizens' keen interest in online resources for government and civic information, emphasizing the importance of open government policies in enhancing community satisfaction. However,

at the local level, limited budgets and technical capabilities pose challenges to opening up data. Data-driven journalism has seen a significant expansion in scope and context with the proliferation of data generated across various sectors, including government, industry, research, and social media. Access to powerful online tools and open-source software empowers data journalists to gather, clean, and present data swiftly through interactive features, mobile apps, and maps.

The rising demand for data journalists across the news industry and beyond highlights their potential to break stories, attract large audiences, and complement the work of other journalists within media organizations. However, challenges such as digital literacy, competition for newsroom resources, global threats to press freedom, and restricted access to data hinder the adoption of data journalism, particularly in less developed nations like Nigeria. This study aims to investigate the knowledge and application of data-driven journalism among journalists in Katsina state, focusing on those working in television, radio, or newspaper organizations. The evolution of investigative journalism from manually sifting through physical records to database-driven reporting underscores the transformative impact of technology on the journalistic landscape, highlighting the need for journalists to adapt and acquire data analysis skills.

The Need for Data Journalism

Ingram (2009) and Slocum (2011) pointed out that while the allure of captivating data visualizations or making national budgets more understandable to the public is evident, one of the most significant trends in contemporary media is the integration of data journalism into investigations that span months or even years. The advent of powerful web-based tools for data scraping, cleaning, analysis, storage, and visualization has revolutionized the capabilities of smaller newsrooms with limited resources. The embrace of open-source software, agile development methodologies, and the burgeoning open data movement has revitalized traditional computer-assisted reporting. What distinguishes today's data journalism from the computer-assisted reporting of the past is a focus on collaboration across newsrooms and the commitment to transparency, including the publication of data and code that underpin journalistic work.

Similarly, Kaplan (2014) and Rogers (2014) stressed that through task automation, a single data journalist can enhance the productivity of an entire newsroom and construct databases that can serve as valuable resources for future reporting. In an era marked by an abundance of information, tools capable of distillation and sense-making are incredibly valuable, as they save time and communicate crucial insights. News organizations cannot afford to relinquish this role.

Data journalism can be a swift or gradual process, spanning weeks, months, or years. Regardless, journalists must still verify their sources, whether human or datasets, and present them within a contextual framework. Employing data as a source does not eliminate the imperative for fact-checking, contextualization, or reporting that substantiates the veracity of the information. Data journalism equips watchdogs and journalists with innovative tools, playing a crucial role in a global strategy to uphold investigative journalism that holds the world's most influential institutions and entities accountable, including the wealthiest individuals, those involved in organized crime, multinational corporations, legislators, and heads of state (Rogers, 2010).

The surge in data generation and the imperative to comprehend how governments and corporations wield power have intensified the demand for new digital technologies and the development of related skills within the media industry. Data and journalism have become inextricably intertwined, with an amplified emphasis on presentation, accessibility, and dissemination. Worldwide, a growing number of data journalists are engaged in activities that extend beyond merely publishing data visualizations or interactive maps. They employ these tools to uncover corruption and hold influential figures accountable. The most proficient members of this journalistic community are immersed in multi-year investigations seeking evidence that either corroborates or refutes the most fundamental inquiries that journalists can pose (Rogers, 2012).

In the hands of the most adept practitioners, data journalism serves as a potent instrument that amalgamates computer science, statistics, and decades of insights derived from the social sciences to make sense of extensive datasets. At this level, data journalists develop algorithms to uncover patterns

and map out relationships of influence, authority, or information sources. As they identify trends within the data, journalists can compare these signals with the insights and trends derived from traditional investigative journalism, complemented by critical thinking and context (Laukides, 2010).

Newsrooms, non-profit organizations, and developers across both the public and private sectors are wrestling with the management and extraction of insights from the colossal volumes of data generated daily. Notably, all these entities are harnessing similar statistical software, web-based applications, and open-source tools and frameworks to wrangle, manage, and analyze this wealth of data (Howard, 2014).

Theoretical Framework

The study adopts the theoretical framework of Media Determinism Theory, an extension of Technological Determinism Theory. Initially formulated by Thorsten Veblen and further developed by Clarence Ayres, Technological Determinism posits that technology serves as the primary catalyst shaping a society's social, political, and economic landscape. It contends that shifts in productive technology profoundly impact human interactions, organizational structures, and cultural norms, with societal practices revolving around technological and economic foundations.

Derived from Technological Determinism, Media Determinism Theory underscores the significant role of media technology in molding socio-political and economic development within a society. Scholars such as Harold Innis and Marshall McLuhan champion this perspective, viewing media technology as instrumental across all facets of civilization. McLuhan's concept, "the medium is the message," highlights the symbiotic relationship between media form and content, emphasizing that the medium itself influences how messages are perceived. Despite critiques for oversimplification, Media Determinism Theory remains pertinent to understanding how journalists in Katsina state utilize various new media technologies to gather, process, and analyze data, thereby impacting socio-economic and political dynamics within the society.

Objectives of the Study

- a. Identify the level of awareness regarding data-driven journalism among journalists in Katsina state.
- b. Evaluate the level of knowledge on data-driven journalism among journalists in Katsina state.

Research Questions

- a. What factors influence the level of awareness regarding data-driven journalism among journalists in Katsina state?
- b. How does the level of knowledge on data-driven journalism among journalists in Katsina state impact their reporting practices and content quality?

METHODS

The study focused on assessing the knowledge and application of data-driven journalism techniques among journalists registered with the Katsina state chapter of the Nigerian Union of Journalists, particularly those working in television, radio, or newspaper organizations in Katsina. Employing a survey method, commonly used in the social and behavioral sciences, the research aimed to explore the perceptions, beliefs, values, opinions, and characteristics of this specific population, providing a comprehensive understanding of their dispositions.

The population was stratified into television, radio, and newspaper organizations, from which a proportionate sample of 189 journalists was drawn from a total registered journalist population of 360. The research was designed to provide insights into the then-current state of knowledge and application of data-driven journalism among journalists in Katsina state.

Data collection was conducted using a self-administered structured questionnaire personally distributed to the selected sample by the researcher. Journalists within the sample were identified within their respective organizations, and the questionnaires were handed to them.

Descriptive statistics were employed as the primary method of data analysis and interpretation to summarize and describe the data. Mean scores were calculated to determine the average knowledge and

application levels of journalists regarding data-driven journalism. SPSS was utilized for data analysis, and validation of instruments, including instrument validity and reliability, was conducted.

RESULTS

Research Question 1: *What factors influence the level of awareness regarding data-driven journalism among journalists in Katsina state?*

Analysis of data relating to research question 1 is presented in Table I.

Table I: Mean responses on the factors influence the level of awareness regarding data-driven journalism among journalists in Katsina state.

N = 189					
SN	Item Statements	X	SD	Remarks	
1	Access to training opportunities on data-driven journalism significantly impacts journalists' awareness levels.	2.98	0.91	Agree	
2	Exposure to examples of successful data-driven journalism stories enhances journalists' awareness.	2.76	1.01	Agree	
3	Availability of resources such as data analysis tools and databases influences journalists' awareness of data-driven journalism.	3.10	0.88	Agree	
4	Support and encouragement from editorial leadership regarding data-driven reporting positively affect journalists' awareness levels.	2.80	0.76	Agree	
5	Peer influence within the newsroom regarding the importance of data-driven journalism impacts awareness.	3.11	0.82	Agree	
6	Personal interest and motivation in learning about data-driven journalism contribute to awareness levels.	2.80	0.76	Agree	
7	Perceived relevance of data-driven journalism to journalistic practice influences awareness.	3.11	0.82	Agree	
8	Understanding of the potential benefits of data-driven journalism in improving reporting quality affects awareness.	2.81	0.86	Agree	
9	Awareness of the impact of data-driven journalism on audience engagement and trust in news influences journalists' perceptions.	2.46	0.81	Disagree	
10	Perception of the organizational culture towards data-driven journalism influences awareness levels among journalists.	2.81	0.75	Agree	
Cluster Mean		2.87		Agree	

Source: Questionnaire, 2024

As displayed in Table 1, the mean ratings range from 2.46 to 3.11. The lowest mean rating is 2.46, corresponding to item 9, indicating disagreement. The highest mean ratings are 3.10 and 3.11, corresponding to items 3 and 5, respectively, indicating agreement. The standard deviation values range from 0.75 to 1.01. A cluster mean of 2.87 falls within the "Agree" range, indicating that, on average, respondents agree that factors such as access to training opportunities, exposure to successful examples, availability of resources, peer influence, personal interest, perceived relevance, and understanding of potential benefits positively influence awareness regarding data-driven journalism among journalists in Katsina state. Overall, the mean ratings, standard deviation, and cluster mean provide insights into the level of agreement or disagreement among respondents and the variability in their responses regarding the factors influencing awareness of data-driven journalism among journalists in Katsina state.

Research Question 2: *How does the level of knowledge on data-driven journalism among journalists in Katsina state impact their reporting practices and content quality?*

Analysis of data relating to research question 2 is presented in Table 2.

Table 2: Mean responses on the level of knowledge on data-driven journalism among journalists in Katsina state impact their reporting practices and content quality.

N = 189				
SN	Item Statements	X	SD	Remarks
11	Journalists with a higher level of knowledge on data-driven journalism are more likely to integrate data analysis into their reporting practices.	2.99	0.71	Agree
12	Greater knowledge of data-driven journalism enhances journalists' ability to identify and utilize relevant datasets in their reporting.	2.85	0.85	Agree
13	Journalists with advanced knowledge of data-driven journalism are more likely to critically evaluate the credibility and reliability of data sources.	2.80	0.73	Agree
14	Increased knowledge of data-driven journalism enables journalists to effectively communicate complex data-driven stories to their audience.	2.68	1.05	Agree
15	Journalists with a deeper understanding of data-driven journalism are more likely to collaborate with data specialists or analysts in their newsroom.	2.40	0.81	Disagree
16	Greater knowledge of data-driven journalism leads to the adoption of innovative storytelling techniques and visualizations to enhance content quality.	2.86	0.96	Agree
17	Journalists with advanced knowledge of data-driven journalism are more likely to adhere to ethical standards when collecting and interpreting data for reporting.	2.63	0.96	Agree
18	Increased knowledge of data-driven journalism enables journalists to identify and report on emerging trends or patterns within datasets.	2.12	0.84	Disagree
19	Journalists with a higher level of knowledge on data-driven journalism are more inclined to seek continuous learning and professional development opportunities in this field.	2.44	1.02	Disagree
20	Greater knowledge of data-driven journalism leads to improved accuracy, depth, and contextualization of information in journalistic content.	2.70	1.06	Agree
Cluster Mean		2.65		Agree

Source: Questionnaire, 2024

Data presented in Table 2 above shows the mean ratings in Table 2 range from 2.12 to 2.99. The lowest mean rating is 2.12, corresponding to item 18, indicating disagreement. The highest mean rating is 2.99, corresponding to item 11, indicating agreement. The standard deviation values range from 0.71 to 1.06. A cluster mean of 2.70 falls within the "Agree" range, indicating that, on average, respondents agree that greater knowledge of data-driven journalism leads to improved reporting practices and content quality. Overall, the data suggests that while there is general agreement that higher knowledge of data-driven journalism positively impacts reporting practices and content quality, there are certain areas where respondents are less convinced, particularly regarding collaboration with data specialists, identification of emerging trends, and seeking continuous learning opportunities.

CONCLUSION

The study examined the knowledge and application of data-driven journalism among journalists in Katsina state, Nigeria. It explored factors influencing awareness of data-driven journalism and assessed how knowledge impacts reporting practices and content quality. Findings revealed that factors like training opportunities, exposure to successful examples, and editorial support influence awareness. Higher

knowledge levels correlated with better integration of data analysis, collaboration with specialists, and improved storytelling techniques. Embracing data-driven journalism can enhance journalistic quality and relevance, requiring investment in training and resources to empower journalists in navigating modern media complexities effectively.

RECOMMENDATIONS

In line with the findings and conclusions, the following recommendations are hereby proffered:

- a. Media organizations and stakeholders should invest in comprehensive training programs to equip journalists with the necessary skills in data-driven journalism. These programs should cover data analysis techniques, visualization tools, and ethical considerations. Providing regular workshops, seminars, and online courses will help journalists stay updated with the latest trends and best practices.
- b. Newsrooms should encourage collaboration and knowledge-sharing among journalists, data specialists, and analysts. Creating platforms for interdisciplinary teamwork can facilitate the integration of data-driven approaches into reporting practices. Additionally, providing access to data analysis tools and resources will empower journalists to leverage data effectively in their storytelling endeavors.

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