EFFECTIVENESS OF AI ON COMMUNICATION AND KNOWLEDGE ECONOMY IN THE 21ST CENTURY AMONG MASS COMMUNICATION EXPERTS IN RIVERS STATE.

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Abstract

This study explored the influence of artificial intelligence on communication and knowledge economy in the 21st century among mass communication experts. Specifically, the study determined the effectiveness of artificial intelligence in fostering effective communication in the knowledge economy, identify the challenges militating against the optimal utilization of artificial intelligence in mass communication for developing the knowledge economy, suggest measures that can be utilized in ameliorating these challenges and identify stakeholders as well as their roles in the process of inculcating artificial intelligence in mass communication for the knowledge economy. The study was anchored on the media richness theory. A population of 107 communication experts across 4 different public tertiary institutions was used for the study. The study adopted a descriptive survey research design. Findings from the study showed that artificial intelligence is significantly effective in natural language process, personalizing content creation and data analysis. Findings further showed that the challenges militating against optimal AI use include data privacy concerns, ethical considerations and skills gaps. The study also determined that measure such as investment in AI research and development, education and interdisciplinary collaboration contribute towards ameliorating the challenges of AI usage and also that governments, regulatory bodies academic and research institutions as well as communication experts are stakeholders with relevant roles towards driving optimal AI utilization among mass communication experts. These findings hold the potential to shed light on the intricate nuances of AI's role in reshaping broadcasting, offering insights that extend beyond the immediate industry impact.

Keywords: Artificial Intelligence, Communication Dynamics, Broadcasting Transformation, Knowledge Economy, Technological Landscape.

Introduction

Broadcasting is an integral part of communication as it makes for the seamless dissemination of information to a large and diverse audience simultaneously. Broadcasting helps in mass communication due to the fact that it allows messages to reach a vast number of people, thus making it an effective tool. Furthermore, it enables the sharing of information, news, entertainment and educational content with a broad audience. Broadcasting is also vital for information dissemination due to the fact that through it, information can be quickly and efficiently distributed to a wide range of individuals. This is particularly important in emergency situations where timely communication is vital. In addition, broadcasting helps in raising public awareness about various issues, events and developments. According to Duke (2021), broadcast serves as a platform for discussing social, political and cultural topics, thus contributing to an informed and engaged society. The author further mentioned that an engaged and informed society facilitates seamless cultural exchange as people have access to diverse information, perspectives and traditions around the world.

With AI software, news stories are produced automatically through computer programs that interpret, organize, and present data in human-readable ways. According to Cohen (2015), the process involves an algorithm that scans large amounts of provided

data, selects from an assortment of pre-programmed article structures, orders key points, and inserts details such as names, places, amounts, rankings, statistics, and other figures. Hall (2018) argues that elsewhere in the industry, the co-founder of Narrative Science predicts up to 90% of articles will be written by AI within 15 years. Also, similar technology is available to summarize long articles into bite sized content for social media. The use of AI in journalism has tremendously helped to rapidly expand coverage. Through AI, media organizations can now, more easily, gather, process, and disseminate information on local and global issues thereby expanding the scope of civic duty beyond a specific community or nation. AI has changed the way we communicate and the procedure for news reporting. This has become achievable because when journalists combine the use of AI alongside their manual ability, the process of news gathering and reporting will be sped up, and the journalists will have more time for higher-level tasks to deliver content faster, with less cost. Using AI saves time and cost development for the media industry as a whole, and news delivery is done faster and more efficiently; especially now that artificial intelligence (AI) is being used in journalism practice.

The 21st century has witnessed unprecedented advancements in artificial intelligence (AI) technologies, leading to a paradigm shift in various sectors. Broadcasting, which is a cornerstone of information dissemination, is undergoing a significant transformation due to the integration of AI. For instance, AI driven algorithms have been increasingly utilized to generate content, ranging from news articles to video scripts. This automation enhances efficiency and reduces production costs (Smith, 2020). Some content creation platforms like OpenAI's GPT-3 have demonstrated remarkable capabilities in generating coherent and contextually relevant text. In addition, AI algorithms have been able to analyze user preferences, behaviours and historical data in order to deliver personalized content recommendations. This not only enhances user engagement but also contributes to the creation of filter bubbles, raising concerns about information diversity (Pariser, 2011). AI has also influenced broadcasting by bringing a communication revolution by leveraging on attributes such as virtual assistants to engage in natural and context-aware conversations. This has significantly influenced interactions, providing instant and personalized responses to queries (Rana, Sharmar and Kapoor, 2019). AI has also impacted the knowledge-economy facet of broadcasting by facilitating quicker data analytics, thus aiding researchers in extracting meaningful insights. This accelerates the pace of innovation and contributes to the knowledge economy (Brynjolfsson, and McAfee, 2017).

Despite positive significant contributions of AI technology to broadcasting, its evolution has also brought some significant challenges. Firstly, the rise of deep-fake content poses challenges to the authenticity of information. Broadcasting platforms continually contend with the implications of this, especially its effects on trust and credibility (Liao, Li and Wang, 2018). Furthermore, there is a higher risk of job displacement and skill sifts, which could lead to job losses, necessitating re-skilling in order to adept to evolving job requirements (Manyika, Chui, Miremadi, Willmott, and Dewhurst 2017). These risks arise also because of the inevitable interplay between technology and communication.

Effective communication is fundamental to fostering innovation and knowledge creation. Tacit knowledge sharing is important through socialization and communication processes within organizations. As organizations strive to innovate, open channels of communication facilitate the seamless exchange of ideas and insights, leading to the creation of new knowledge. Furthermore, communication technologies and platforms have become essential tools for collaboration in the knowledge economy. This is because virtual communication tools enable global collaboration, breaking down geographical barriers and constraints (Powell, Piccoli and Ives, 2004). Collaborative platforms also help in enhancing knowledge sharing among individuals and organizations, leading the creation of intellectual capital.

In addition to growing intellectual capital, the knowledge economy relies on efficient communication. Digital communication channels, such as the internet and social media, enables for rapid and widespread sharing of knowledge. Achieving optimal information

dissemination requires high level of human capital and communication skills. Communication skills are critical in the knowledge economy, where the value of human capital is paramount. Effective communication is essential for transferring knowledge between individuals and within organizations, contributing to the development of human capital.

In order to bring about growth and development in human capital as well as the overall knowledge economy, knowledge sharing is of utmost importance in organizations. Internal communication within organizations is a key factor in knowledge management. According to Alavi and Leidner (2001), communication processes are significant in facilitating knowledge sharing and organizational learning, making communication to have a key role in creating a knowledge-sharing culture. Thus the interplay between communication and the knowledge economy is a multifaceted and integral relationship. Also, effective communication facilitates knowledge creation, collaboration, information dissemination and the development of human capital, contributing to the dynamic and evolving nature of the knowledge economy.

In the usage of AI for journalism practice, Kobie (2018) reports that Reuters is building an AI tool called "Lynx Insight". This AI will serve as a digital data scientist-cum-copywriting assistant to journalists. It will help them to analyze data, suggest story ideas, and even write some sentences by churning through massive datasets, looking for anything interesting. In other words, the AI does what it is good at, and then present journalists with raw materials to work with. Reuters has also partnered with Graphiq; it uses AI to build and update data visualizations. The tool enables faster access to data, and, once they are embedded in a news story, the visualizations are updated in real time. Schmelzer (2018) concurs by giving the example of Reuters` use of AI to scour twitter feeds to find breaking news before it becomes headlines. In this way, valuable information is transmitted as soon as it is available.

Artificial intelligence is playing a key significant role in reshaping crucial aspects of broadcasting. This impact can be observed across various areas, including content creation and automation, personalized recommendations, audience engagement and operational efficiency. Pertaining to content creation and automation, artificial intelligence algorithms are being used to generate and optimize content. These automated writing tools are assisting in the creation of news articles and reports. (Casanueva, Martinez and Otegi, 2019).

Real-time language translation is also another facet of how AI is reshaping broadcasting. AI-powered language translation services facilitate real-time translation of live broadcasts, breaking down language barriers and expanding global audience reach (Wu, Schuster and Chen, 2016).

Enhanced audience engagement is also another facet of of Ai influence in broadcasting. Platforms such as chatbots and virtual assistants which are diving by AI enhance audience engagement by providing instant responses to queries, conducting polls and facilitating interactive experiences during events such as live broadcasts (Serban, Sordoni and Lowe, 2016).

The media and entertainment business is becoming an increasingly substantial market for AI technology due to the popularity of virtual assets such as high-definition graphics and real-time virtual worlds. AI offers considerable benefits here, simplifying content management and workflows. It has also delivered increased discoverability of older archive content due to improved AI metadata and powerful localization. In addition, AI has influenced broadcast graphics as broadcasters are not only interested in optimized workflows, but the promise of virtual studios is proving a powerful incentive. Recommendation systems are an emerging technology trend relevant to AI in broadcasting. This is due to the fact that broadcasting platforms utilize AI algorithms for personalized content recommendations. In addition, machine learning algorithms analyze user behaviour to suggest relevant content and enhance user engagement (Cheng, 2016).

Automated transcript and translation is another emerging trend in AI and broadcasting. AI-powered tools enable real-time transcription and translation of broadcasts, making content accessible to a global audience. Enhanced production and editing is also another emerging

trend in AI and broadcasting. AI significantly assists in automating aspects of video production and editing. Computer vision algorithms can identify key scenes, emotions or objects, facilitating efficient editing processes (Zou, 2018). Voice and speech synthesis are also another emerging trend in AI and broadcasting. AI driven voice synthesis technologies are used in broadcasting for generating synthetic voices that sound natural and human-like. AI journalism and news generation is also another emerging trend and relationship between AI and broadcasting. AI algorithms contribute significantly to news writing and generation of news report by using natural language processing and understanding.

Objectives

The general objective of the study is to explore the influence of artificial intelligence on communication and knowledge economy n the 21st century among mass communication experts. Specifically, the study aims to ascertain the;

1. Effectiveness of artificial intelligence in fostering effective communication in the knowledge economy.
2. Challenges militating against the optimal utilization of artificial intelligence in mass communication for developing the knowledge economy.
3. Measures that can be utilized in ameliorating these challenges.
4. Stakeholders in the process of inculcating AI in mass communication for the knowledge economy.

Literature Review

Theoretical Framework

This study was anchored on the Media Richness Theory. The Media Richness Theory (MRT) was propounded by Richard L. Daft and Robert H. Lengel in 1986. This theory posits that different communication media vary in their ability to convey information effectively. Media richness refers to the capacity of a communication medium to effectively transmit information, taking into account factors like immediacy of feedback, the ability to convey multiple cues, language variety, and personal focus (Daft & Lengel, 1986). Richer media, such as face-to-face communication, are more effective in handling complex, ambiguous tasks because they provide immediate feedback and convey nuances through body language and tone. Conversely, leaner media like memos or emails are better suited for clear, straightforward tasks.

The relevance of MRT to the "Effectiveness of AI on Communication and Knowledge Economy in the 21st Century among Mass Communication Experts in Rivers State" lies in understanding how AI-driven tools can be leveraged to enhance communication. AI can bridge gaps in media richness by providing immediate, personalized responses and analyzing large volumes of data to offer insights and feedback. For instance, AI chatbots and virtual assistants can simulate richer communication by understanding context and responding accordingly, thus supporting effective knowledge dissemination and decision-making. This aligns with MRT's proposition that richer media improve communication efficiency, which is crucial in a knowledge economy where rapid and accurate information exchange is paramount.

In the context of mass communication experts in Rivers State, AI technologies can enhance the richness of digital communication platforms, making them more effective for both interpersonal and organizational communication. By improving media richness, AI can facilitate better understanding and collaboration among professionals, thereby driving productivity and innovation in the knowledge economy.

Methodology

The study adopted a descriptive survey research design. The population of this study comprised of mass communication lecturers in government owned tertiary institutions in the Rivers state. These institutions include ; University of Port Harcourt, Rivers State University of Science and Technology Port Harcourt, and Ken Saro Wiwa Polytechnic, Bori. And Captain Elechi Amadi Polytechnic, Rumola. A total of 107 lecturers of these institutions who are communication experts were used for this study. There was no sampling technique due to the manageable size of the population. Therefore, the Population of the study served as the sample size.

The population breakdown across the institutions are provided in table 1 below

Table 1: Population breakdown of respondent

S/N	Name of Institution	Population
1.	University of Port Harcourt	42
2.	Rivers State University of Science and Technology	35
3.	Ken Saro Wiwa Polytechnic, Bori	19
4.	Captain Elechi Amadi Polytechnic, Rumola	11
	Total	107

Structured questionnaire was used to collect data for this study. The questionnaire was administered by hand by the researcher to the respondents. The data obtained from the questionnaire was analyzed using the statistical package for social science (SPSS) version 20. Mean scores were used to answer the research questions while standard deviation was used to ascertain the spread from the mean. A four point scale was used for the mean scores ad the results are shown below.

Results

The results for the study are arranged in accordance with the objectives of the study;

1. How effective is artificial intelligence towards fostering effective communication?

Results from this research question are presented in table 1.

Table 2: Mean and standard deviation of respondents of the roles of artificial intelligence towards fostering effective communication

Item statement	X	SD	Remark
Natural language processing	3.01	0.89	Significant
Chatbots and virtual assistants	3.11	0.92	Significant
Personalized recommendations and content creation	3.03	0.86	Significant
Data analysis and insights	2.92	0.81	Significant
Automated language translation	2.87	0.81	Significant
Content generation and personalization	3.08	0.88	Significant
Emotion recognition and sentiment analysis	2.99	0.77	Significant

Results from table 2 above shows that artificial intelligence is effective towards fostering effective communication include natural language processing, chatbots ad virtual assistants, personalized recommendations and content creation as well as data analysis and insights. Some other roles include automated language and personalization as well as emotion recognition and sentiment analysis.

2. What are the challenges militating against the optimal utilization of artificial intelligence in mass communication for the development of knowledge economy?

Results from the second research question are shown in table 2.

Table 3: Mean and standard deviation scores on challenges militating against the optimal utilization of artificial intelligence in mass communication towards the development of the knowledge economy

Item statement	X	S	Remark
Data privacy concerns	2.67	0.71	Significant
Ethical considerations	3.15	0.91	Significant
Lack of quality data	3.05	0.86	Significant

Algorithm transparency	2.83	0.81	Significant
Skill gaps	3.04	0.89	Significant
Regulatory challenges	3.01	0.87	Significant
Resistance to change	3.12	0.93	Significant
Cost of infrastructure	2.93	0.77	Significant

Results from table 3 shows that the challenges militating against optimal utilization of AI in mass communication towards developing the knowledge economy include data privacy concerns, ethical considerations a lack of quality data and algorithm transparency. Some other challenges also include skill gaps on the part of communication experts, regulatory challenges, resistance to change as well as high cost of infrastructure.

3. What measures can be used to ameliorate the challenges associated with the utilization of AI in mass communication for the development of the knowledge economy?

Results from the third research question are presented n table 3

Table 4: Mean and standard deviation of responses on measures to ameliorate challenges of AI utilization in mass communication for knowledge economy.

Item statement	X	SD	Remark
Investment in AI research and development	2.92	0.68	Significant
Education and training programs	2.97	0.67	Significant
Data accessibility and quality improvement	3.33	0.93	Significant
Ethical guidelines and standards	3.11	0.89	Significant
Interdisciplinary collaboration	3.01	0.91	Significant
Promotion of open source AI tools	2.61	0.61	Significant
Incentives for innovation	2.77	0.67	Significant
Regulatory frameworks	3.06	0.88	Significant
Partnerships with AI industry	3.19	0.93	Significant
Public awareness	3.25	0.98	Significant

Results from table 4 shows that possible measures for ameliorating the challenges that are associated with utilizing AI in mass communication are an investment in AI research and development, education training programs, data accessibility and quality improvement as well as ethical guidelines and standards. Other measures include interdisciplinary collaboration, promotion of open source AI tools, incentives fro innovation, regulatory frameworks, partnerships with the AI industry as well as public awareness.

4. Who are the stakeholders in the process of utilizing AI mass communication for the knowledge economy?

Results for research question four are shown in table 5.

Table 5: Mean and standard deviation of respondents on identification of the stakeholders in the process inculcating AI in mass communication for the knowledge economy

Item statement	X	SD	Remark
Government and regulatory	3.01	0.89	Significant

bodies			
Media organizations and content providers	2.92	0.85	Significant
Technology companies and AI developers	2.93	0.83	Significant
Academic and research institutions	2.81	0.77	Significant
Advertisers and marketing agencies	2.88	0.79	Significant
Consumers and audience members	2.94	0.84	Significant
Ethical and advocacy groups	2.84	0.76	Significant
Data providers and aggregators	.95	.85	nificant
Investors and venture capitalists	2.83	0.78	Significant
Industry associations and standard bodies	2.91	0.87	Significant

Results from table 5 shows that some of the stakeholders in the process of \inculcating artificial intelligence in mass communication for the knowledge economy include government and regulatory bodies, media organizations and content providers, technology companies and AI developers as well as academic and research institutions. Furthermore, stakeholders also include advertisers and marketing agencies, consumers and audience members, ethical advocacy groups, data providers and aggregators, investors and venture capitalists as well as industry associations and standard bodies.

Findings

Results from the study showed that artificial intelligence is significantly effective towards fostering effective communication include natural language processing, chatbots and virtual assistants, personalized recommendations and content creations well as data analysis and insights. These are in line with the views of Oluwatimilehin, Igbekoyi, Ogungbade and Adeware (2023) who mentioned that AI tools such as chatbbots and virtual assistants significantly help organizations in using computer programs to

make for easier, faster, cheaper and more efficient communication. The authors further mentioned that these computer programs make it easier for communication experts to engage in content creation and reach a wide audience, surmounting geographical constraints. Results are also in agreement with the views of Awotomusili, Dogunduro and Osaloni (2022) who mentioned that AI programs make for more effective data analysis, giving professionals better insight on existing phonemona, thus improving decision making.

Results from the study also showed that some of the roles of AI towards fostering effective communication include automated language translation, content generation and personalization as well as emotion recognition and sentiment analysis. These are in line with the views of Al-Aroud, Al-Sayyed and Zayed (2021) who mentioned that complex tasks such as translating languages, emotion recognition and generation of original content have been made more feasible with the advent of AI, engendering better efficiency in communication.

Results from the second research question shows that some of the challenges militating against the optima utilization of AI in mass communication for the development of the knowledge economy include data privacy concerns, ethical considerations, lack of quality data and algorithm transparency. These are in line with the views Robinson (2018) ho mentioned that AI could give unfettered access to sensitive data and information, breaching ethical standards and putting the owners of the information in danger. The authors also mentioned that some unscrupulous elements could use AI to generate false data, making for reduced quality in research and other damaging consequences which could make for hoarding of information, thus a lack of algorithm transparency.

Results from the study also showed that some of the challenges militating against the optimal utilization of AI in mass communication include skill gaps on the part of communication experts, regulatory challenges, resistance to change as well as cost of infrastructure. These are in line with the views of Aosgwa, Ugwu and Idoko (2016) who mentioned that a relative lack of requisite ICT skills significantly hamper some communication experts in optimally utilizing AI tools for improving communication. The authors further mentioned that in addition to skill gaps, regulatory challenges also hamper the effective utilization of AI in communication as some laws that are detrimental to AI utilization are passed without proper consultation. Results are also in agreement with the views of Nsude (2020) who opined that the cost of infrastructure needed to utilize AI in communication is usually too high for some organizations to shoulder, thus discouraging its utilization. The author further mentioned that communication experts also resistant to changes that occur with AI use due to the fact that the inculcation of AI in communication could make them moribund and possibly cost them their jobs.

Results from the third research question shows that some measures that can be used in ameliorating the challenges of inculcating AI in mass communication for the utilization of the knowledge economy include investment in AI research and development, education an training programs, data accessibility and quality improvement as well as ethical guidelines and standards. These are in line with the views of Adigwe, Onavbavbe and Sanyaolu (2024) who mentioned that adequate investment in AI research and development and a follow-up training and development program significantly helps in improving the utilization of AI for effective communication and experts. The authors further mentioned that these capacity building activities will help in improving accessibility to data, improving overall quality of work as well as adherence to ethical and quality standards.

Results from the study also showed that some other measures that can be utilized for ameliorating the challenges of AI integration in mass communication include interdisciplinary collaboration, promotion of open source AI, incentives for innovation and a regulatory framework. These are in line with the views of Mormah and Bassey (2021) who mentioned that interdisciplinary collaboration between mass communication and IT disciplines significantly promote utilization of AI in mass communication as well as helping communication experts to utilize open AI sources that are available for them. The authors further mentioned giving incentives for innovation and having a proper regulatory

framework that encourages ethical innovation significantly promotes the optimal utilization of AI systems in the mass communication. Results are also in agreement with the views of Tella (2011) who postulated that it is of utmost importance to continually raise awareness about the benefits of artificial intelligence in all disciplines, including mass communication o as to encourage more people to use it. Also, results are in agreement with the views of Onyia and Offorma (2011) who mentioned that cross-sectorial collaborations and partnerships with the AI industry improves the utilization of AI in academic disciplines towards achieving developmental goals.

Results from the study showed that some of the stakeholders in the process of inculcating AI in mass communication include governments and regulatory agencies, media organizations and content providers, academic and research institutions, advertisers and marketing agencies as well as consumers and the general audience. These are in line with the views of Effoduh (2021) who opined that government, media organizations, technology companies, media professionals as well as marketers and regulatory bodies are significant stakeholders in the process of utilizing AI in mass communication. The results ares also in tandem with the views of Olanipekun, Adekunle and Ajala (2024) who mentioned that industry standard bodies, data providers as well as investors and venture capitalists are significant stakeholders in the process of inculcating AI in mass communication through provision of capital for infrastructure development as well as promulgation of favourable laws and legislation.

Conclusion

In conclusion, the integration of AI into broadcasting has ushered in a transformative era, significantly impacting communication and the knowledge economy in the 21st century. As AI technologies continue to evolve, they offer unprecedented opportunities for enhanced content creation, personalized user experiences, and efficient information dissemination. The ability of AI to analyze vast amounts of data, predict user preferences, and automate processes has not only revolutionized how we consume information but has also opened new avenues for creativity and innovation. While challenges such as ethical considerations and potential biases need careful attention, the overall impact of AI on broadcasting is undeniably groundbreaking, promising a future where communication is more dynamic, inclusive, and tailored to individual needs in the ever-evolving landscape of the digital age.

Recommendations

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

1. Due to the significant effectiveness of AI in fostering effective communication, media professionals should explore various strategies for integrating AI in broadcasting an communication platforms. This could involve researching case studies of successful AI implementations in broadcasting, analyzing the challenges faced and outlining best practices.

2. Media experts should continually investigate how AI technologies are transforming content creation in broadcasting. This could include studying AI-generated content, automated editing techniques and personalized content recommendations.

3. Ethical implications of AI in broadcasting should be highlighted by examining issues such as bias in AI algorithms, privacy concerns and the potential impact on employment in the broadcasting industry.

4. Educational initiatives for mass communication experts should be promulgated to help them adapt to AI-driven driven landscape. This may include recommending courses on AI fundamentals, workshops on AI tools for broadcasting and certification programs for AI in media

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