Awareness of Artificial Intelligence for News Production among Journalists in Ebonyi state Nigeria

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ABSTRACT: *This study is focused on extent of awareness of artificial intelligence for news production among journalists in Ebonyi state. The respondents were the practicing journalists in Ebonyi state. The population of the study comprised the 250 registered journalists in the record of the Nigeria Union of Journalists (NUJ), Ebonyi state. Following the small number of the study population, census sampling was used. Survey research method was adopted by the researcher in eliciting data. In that case, 250 copies of questionnaire were administered to the practicing journalists in Ebonyi state. Simple percentage and frequency tables were used for data analysis. The study was anchored on diffusion of innovation theory and mediamorphosis theory. The objectives of the study includes: (i) to find out the extent of awareness of artificial intelligence for news production among journalists in Ebonyi state (ii) to find out if journalists in Ebonyi state are open to training to acquire skills on AI for news production (iii) to find out the aspect of news production that journalists in Ebonyi state would prefer AI to be deployed. (iv) to find out the probable fears journalists in Ebonyi state have about AI for news production. The study found among others that all the journalists registered under the aegis of the Nigerian union of journalists (NUJ) in Ebonyi state are aware of the use of artificial intelligence for news production. The study made recommendations*

KEYWORDS: awareness, artifical intelligence, news production, journalists**.**

INTRODUCTION

The term "automata" refers to human-like devise, while the word "robota" is from Czech word meaning "heavy work" or "forced labour". The introduction of these words is credited to Czech writer known as Karel Capek (1890-1938) He used the word for the first time in 1920 in his novel

"RUR, Rossum's Universal Robots" (Gasparetto and Scalera, 2019). From the ancient times, Man has sort to design and build some kind of beings or devices that could carry out repetitive or heavy task and relieve him from much works. Since the Greek-Hellenistic age, some of these devices, which were named automata, have been designed, redesigned and created by brilliant inventors, who belonged to several different civilizations through the centuries.

The current robots had been created by George C. Devol in 1954, he was a Kentucky inventor who invented a reprogrammable manipulator called "unimate" from "Universal Automation." He tried to promote his product within the enterprise however could not triumph for over a decade. In the late 1960s, a businessman cum Engineer known as Engleberger, acquired Devol's robot patent and was able to modify it into an industrial robot and form a company called Unimation to produce and market the robots. For Engleberger efforts and accomplishment in the industry he became known as the father of Robotics. He was among the most prominent figures of this era who contributed to the drive towards modern robotics

Felipe and Ceron, 2022) analyzed the news industry's AI adoption based on the seven subfields of AI:(i) Machine Learning (ML) is a form of synthetic Artificial intelligence (AI) that permits software program to end up extra correct at predicting consequences without being explicitly programmed to do so. Machine Learning algorithms use ancient data to produce new output values, ((ii) Computer vision (CV): Computer vision is a field of AI that trains computer systems to takes and interpret statistics from photograph and video records. By making use of Machine (ML) models to images, computer systems can classify gadgets and respond— like unlocking your smart phone when it recognizes your face, (iii) Speech recognition: Speech recognition, or speech-to-text, is the ability of a machine or program to identify words spoken aloud and convert them into readable text, (iv) Natural Language Processing (NLP): Natural language processing (NLP): Natural language processing (NLP) refers back to the department of artificial intelligence involved with giving computer systems the ability to recognize textual content and spoken phrases in a whole lot the same manner people can. (v) Planning, scheduling, and optimization: this refers to a system based on AI uses planning to determine 'what steps to take' (planning) and 'when to carry out a certain step' (scheduling) in order to achieve a goal, (vi) Expert systems: this also refers to a computer program that uses artificial intelligence (AI) technologies to simulate the judgment and behavior of a human or an organization that has expertise and experience in a particular field. Expert systems are usually intended to complement, not replace, human experts and (vii) robotics: this also is a branch of AI, which is composed of Electrical Engineering, Mechanical Engineering, and Computer Science for designing, construction, and application of robots.

However, clear limitations are being found on the awareness, acceptance and adoption of these machines (Ceron, 2022). One of the main limitations is derived from journalists low level of acceptance of these machines which they sometimes fear for the sake of losing their jobs. It is based on this background that this study investigates the extent of awareness of artificial intelligence for news production among journalists in Ebonyi state, Nigeria.

Statement of the problems

The use of software to actually write news story is a new advancement especially in developed countries. (Clerwall, 2014). Less attention has been given to automatically generated news articles, particularly in empirical studies among the developing countries. There are, however, an important number of bibliographical reviews, journalist's opinions, and evaluations of specific cases, studies that approach ethical discussions and studies on companies that work with bots that write news, mainly. Only few studies have been done in this area, some of these works standout, such as those done by Okiyi and Nsude (2019), Guanah (2020), Guanah, Agbanu and Obi (2021), Lopez, Fe ieiras- ceide and Vaz-Alvarez (2020), Nwanyanwu and Nwanyanwu (2021), Salazar (2018) and Ukwela (2017). To the best of the researcher's knowledge, none of these studies focused on the Awareness of Artificial Intelligence for News Production among Journalists in Ebonyi state, Nigeria. It is this gap in knowledge that this study is designed to close.

Objectives of the Study

The broad objective of this study is to find out the awareness of artificial intelligence for news production among journalists in the Ebonyi State Nigeria. The specific objectives are to:
1.   to ascertain if journalists in Ebonyi state are aware of artificial intelligence for news production.
2.   to determine if journalists in Ebonyi state are open to training on the skills of Artificial intelligence.
3.   to find out the aspect of news production journalists in Ebonyi state would like artificial intelligence to be deployed.
4.   to ascertain the fears journalists in Ebonyi state have on artificial intelligence for their news production.

Research questions

1.   What is the level of awareness of artificial intelligence for news production among journalists in Ebonyi state?
2.   Are journalists in Ebonyi state open to training to acquire skills of Artificial intelligence?
3.   What aspect of news production would journalists in Ebonyi state like AI to be deployed
4.   What fears do journalists in Ebonyi state have in the advent of artificial intelligence for their news production?

Scope of the Study

This study covered awareness of artificial intelligence for news production among journalists in Ebonyi State Nigeria. It covered registered journalists practicing in Ebonyi state.

Significance of the study

This study will help journalism practitioners and researchers to prepare for the new wave of digital journalism.

LITERATURE REVIEW

Artificial intelligence and journalism practices

The analyses of the relationship between journalism and artificial intelligence (AI) have in many cases been oriented to consider in a restrictive way the use of what is called weak (or narrow) AI,

because it deals with news production as the activity of a machine that only executes the actions which it has been programmed for. AI has not only been used by Washington Post, The Associate Press, BBC, Reuters, Bloomberg, The New York Times, and Sunday Times (U.K), NHK and Finland's STT in 2018, (Yildirim, 2019), submits that In 2018, China's Xinhua News Agency created the world's first AI-powered news anchor, a male, using computer graphics. In 2019, it debuted the first female news anchor again in China. Even smaller outlets are publishing AI-written stories once they subscribe to services that create them, such as the AP and RADAR, which stands for Reporters And Data And Robots. (A joint venture of the UK Press Association and Tech Firm Urbs Media). On the other hand, Guanah (2021) posits that, the situation where machines (artificial intelligence) perform the duties naturally done by humans, and even do them better and faster is the age we are approaching. This era would be dominated by artificial intelligence and human would be relegated to the background while machines take the lead in almost every field of human endeavours. We are already in a period where AI aid human skills to bring about the successful realization and achievements of different task. (Guanah, 2020). According to Walker (2019), AI can even go as far as making a nonexistent person read a script. But at least, the script has to be written by a human being. Nsude, (2020) cited Marconi, (2016) to posit that implementing any new system will disrupt the existing workflow of the newsroom and news production and AI could completely transform the newsroom and the work of journalists by demanding new skills among journalists and the need for a new and easier work flows. According to him, the changes will be gradual and should be kept in mind as anticipates digital revolution. He further states that Newsroom roles like 'Automation Editor and 'Computational Journalists are rising along an elevated interest in digital and data journalism courses. This means that sooner than expected, it will no longer be sufficient for journalists to simply conduct interviews and whole 750 –phrases in a write-up. According to (Nsude, 2020), in the report entitled 'The Future of Augmented Journalism", Associated Press identified a number of technologies with clear applications within the newsroom. They include speech to text, speech recognition, unsupervised and supervised machine learning, machine vision, and natural language generation and processing. All these augment the work of journalists. The report according to Nsude, (2020) points out AP make use of AI to boom their data analysis, perceive patterns, developments and actionable insights from more than one sources which bare eye can't see like converting textual content into audio and video; recognize sentiment; analyze scenes for objects, faces text or colours and more. This report reveals that there are greater speed, accuracy,scale and diversity of coverage. (Nsude, 2020).

Loosen (2018 as cited in Nwayanwu 2020), highlights new four forms of journalism, which can be considered as transformation process the field of journalism faces today not only at the level of the basic stages of news production and consumption but also affects journalism at its core as data journalism: this refers to the process of extracting useful information from data, writing articles based on the information and embedding visualizations in the articles that help readers to understand the significance of the story. As linden (2017, P.24) notes, digital revolution has expanded the supply and availability of data that can be used for computational journalistic processes, along with the expectation of events to a larger extent than before. However, data

journalism represents the convergence of a number of fields which are significant in their own right - from investigative research and statistics to design and programming (Bradshaw 2010 as cited in Nwayanwu, 2020). Algorithm Journalism: also this type of journalism happens when there is the intersection between journalism and data technology (Gynnild, 2021). Besides, it can be "the combination of algorithms, data, and knowledge from the social sciences to supplement the accountability function of journalism"(Harmilton and Turner 2009 as cited in Nwayanwu 2020). Automated Journalism: the focus of this according to Graefe (2016), emphasize the increasing amount of content that is being produced automatically and by means of technologies being developed by providers of automated content solution. In other words, it is algorithmic processes that convert data into narrative news texts which has no human intervention beyond the initial programming, Carlson (2015 as cited in Nwayanwu, 2020). Metrics-Driven Journalism: this also refers to the varied attempts to make sense of an ever-growing amount of audiences' digital traces with the potential to influence decision making processes at all stages of the news production process. (Tandoc and Thomas 2015, as cited in Nwayanwu 2020).

Awareness of Artificial intelligence for news production
The vision of Artificial intelligence for Journalism, the media and journalism industry, without exception, is being transformed by AI (Broussard et al. 2019; Galily 2018; Stray 2019). As the internet develops from a social network to an intelligent network, it has been a network of information and people and an intelligent network of everything connected with information, people, products, and services in the future. In the background of AI and intelligent network, technologies such as virtual reality, augmented reality, algorithm recommendation, machine news, news game, big data, and other cutting-edge technologies come together to impact the journalism and media industry. A more sophisticated understanding of these technologies could help the journalists to grasp and apply these technologies more effectively (Fink and Anderson 2015; Howard 2014; Lewis 2015; Lewis and Westlund 2015; Splendore 2016; Coddington 2015; De Maeyer et al. 2015; M. Muniswamaiah et al. 2020). From this perspective, we see AI technology not as an aggregation of these technologies, but rather as an ecological environment for the next generation of journalists. AI technology will not only change each link in the value chain of the media industry, but also reshape the whole process of news production (Makridakis 2017).

Artificial Intelligence technology has a wide range of application fields and imagination space in the process of combining with journalism and media (Latar 2015; Splendore et al. 2016). It has also raised concerns about fake news, ethical challenges, fear of loss of jobs, algorithm biases, and privacy security. These questions require us to re-examine the values and responsibilities of journalism and journalists in an ethical sense and find a reasonable framework for the application of AI journalism. Therefore, academics and journalists have focused on several highly concerning questions: How could journalists use AI to assist in the news production process? (Jamil 2021; Biswal and Gouda 2020), which newsroom roles might AI replace? (Stray 2019; Linden 2017), Where the press has not utilized AI? (Montal and Reich 2017) Will AI eventually become a part of every news story? (Schapals and Porlezza 2020).

A recent report revealed that a major obstacle for the development of AI in news media is the

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talent competition. This competition not only involves attracting talent but also retaining professionals in newsrooms, which offer lower salaries in comparison to the tech industry (Cook et al. 2021). This newsroom brain drain works against the adoption of technologies in the news industry (Broussard et al. 2019; Lokot and Diakopoulos 2016 in De-lima-Santos, 2021). Even under the above conditions, news outlets around the world are embracing AI solutions in their newsrooms. In recent years, newsrooms began to increasingly automate news stories Linden (2017b), although machine learning algorithms are used to a certain extent for some of these projects, many projects still rely on simple automation that fills in the blanks of template stories and does not produce stories built on prior data (Biswal and Gouda, 2020 in De-lima-Santos, 2021).

Although many of these journalistic bots do not use machine learning or NLP models, they rely on a series of steps to take (planning) and understand when to carry out a certain step (scheduling) in order to publish messages. Some researchers have identified four different categories of news bots: "the inputs and sources of input data; the outputs produced by the news bots; the algorithms that guide how a news bot turns inputs into outputs; and the function or intent of the news bot" (Lokot and Diakopoulos 2016, p.696). In Brazil, newsrooms mainly rely on Twitter bots that use AI models, particularly NLP, machine learning and planning, scheduling, and optimization to process large volumes of data and interact on digital media platforms (DalBen and Jurno, 2021 in De-lima- Santos, 2021). However, bots have also been used with malicious intent in several recent events, such as the 2016 U.S. elections and the Brexit campaign (Bastos and Mercea, 2018) in De-lima-Santos, 2020).

Many people expect AI technology to reduce the costs of investigative journalism, Broussard (2015). However, AI models are generally built for a particular story, which means that these algorithms must be created and trained again for novel projects. As a result, high initial investments cannot be done on installment over multiple products (Stray, 2019). Similarly, investigative news projects that rely on computer vision require significant investments to build technological infrastructure and hire highly qualified personnel to develop such codes (De-Lima-Santos and Salaverría, 2021). Furthermore, AI models are usually trained using old and biased datasets, which can generate many ethical complications according to (Guzman and Lewis, 2020).

Empirical review

Okiyi and Nsude (2020) carried a study titled "Adopting Artificial intelligence to journalistic practices in Nigeria: challenges and way forward" This study is conceptual in nature and used qualitative methods to seek results. Expert views and opinions were used to provide information required for the study. The broad objective of the study was to find out challenges which can hinder successful application of AI to journalism practice in Nigeria. The study employed Media richness and technological determinism theories as they dealt with influence of communication technologies on production and impact on societies. The study found that AI is pertinent to journalism in order for newsrooms to remain competitive and facilitate job opportunities. Despite its advantages, AI poses different kinds of challenges which affect the newsroom. While some of

these may be technical, others are structural and deal with governance. Furthermore, the finding revealed that there are professional and fundamental issues which include basic knowledge and practice which hinder growth and spread of application of AI to junk in Nigeria and other sub-Saharan African countries. The study recommends that there is need for a re-orientation of perceptions on the importance of AI by Governments and journalists themselves to ensure its use to engender productivity in the sector.

The reviewed study and the present study are related. Both studies have interest on the adoption/use of artificial intelligence. The reviewed study centered on Adopting Artificial intelligence to journalistic practices in Nigeria: challenges and way forward and did not include journalists practicing in Ebonyi State Nigeria.

Jammy Seigha Guanah (2021) did a study titled "Mainstream media and artificial intelligence awareness amongst residents of Asaba metropolis, Delta state, Nigeria". The aim of the study was to lend scholarly insight into the awareness creating role of the mainstream media (Newspaper, Radio, and Television) in Artificial Intelligence (AI) operations. The study raised three objectives, it determined the level of awareness about AI by residents of Asaba; the extent the media enlightens the residents about AI; and how AI may likely impact their lives or professions. Diffusion of Innovation Theory gave foundation to the study, the study used questionnaire and oral in-depth interviews to elicit data from respondents. Results of the quantitative study found that the awareness level of the respondents about AI was low; that the media are not doing enough in enlightening the people about the operations of AI, and that majority of the respondents are ignorant of the effects of AI on them, their jobs, and the society they live in. The study recommended among others that every available channel, including opinion leaders and the media, should be used to create awareness about AI.

This study is similar to this work because both dealt with the awareness creation of artificial intelligence, both studies were carried out in Nigeria. While the study under review was mindful of the residents of the Delta state as its respondents, this present research focused on journalists in Ebonyi state as the respondents.

Furthermore, Salazar (2018) carried out a study on "Robots and Artificial Intelligence", new challenges of Journalism. The study analysed the remarkable social impact of Artificial Intelligence (AI) and Robotics in all areas, focusing on journalism. The specific objectives of the study were, to analyze the historical evolution of robots and artificial, intelligence, with the aims of understanding the evolution of thinking about this technology, identify the period of connection between reality and fiction in reference to the new technologies of AI and robots, to know the current attempts to implement AI technologies in the field of journalism among others. The study adopted the Internationally Ethically Aligned Design (EAD) online forum in which internationally relevant professionals present their point of view on how to create the best ethical code for Artificial intelligence. The study found among others that journalism is an area that will be significantly affected by the technologies related to AI, which will definitely change the way the profession is seen. The study recommended among others that professionals should be trained not

only in the knowledge of how to properly transmit information but also on how to collaborate properly with AI machine to obtain the best result.

The reviewed study and this present study dealt with journalism and Artificial intelligence otherwise known as robotic journalism. The study under review focused on the challenges the technology will pose/have posed on journalism practice. It did not consider the awareness of artificial intelligence for news production among journalists in Ebonyi State Nigeria. It is this gap in knowledge that the present study tried to close.

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

The second theory that gave foundation to this work is the mediamorphosis theory which was coined by Roger Fidler in 1990, but was made feasible in his book in 1997 when he referred to it as the transformation of communication media, usually brought about by the complex interplay of perceived needs, competitive and political pressures, and social and technological innovations (Blogspot, 2012 as cited in Guanah, 2020). The theory explains that new media only evolved to updateand upgrade old media. In this way, we may say that AI or software journalismis primarily intended to improve upon the traditional labour of news sourcing that requires movement to various locations to source news, conduct interviews and return to writing, editing footages (TV broadcast) and publishing or broadcasting eventually. Nwammuo & Nwafor (2019), considering these, artificial intelligence, like new media, did not emerge spontaneously or independently, butrather as a result of progressive improvements to an old medium.
These theories were chosen as the best theories for this study since they discusses the current changes in how news is produced, as well as how the entrance of AI into news production may influence information circulation in better and more sophisticated ways.

RESEARCH METHOLOGY

Research Design
 The Survey research design was adopted for this study because of the information required for the study. Survey design involves the collection of data from a relatively large number of people or items considered to be representative of the whole population or group (Maduabum, 1999). The population of the study were the 250 registered members of Nigerian union of journalists. The study targeted the registered journalists in Ebonyi state under the aegis of Nigerian Union of Journalists (NUJ). Census sampling was adopted for this study. Structured questionnaire was used

as the instrument of data collection. Two research experts validated the research instrument for clarity, concise and to make sure the questionnaire items were straight to the point, easy to comprehend and to make sure the content of the instrument was in line with the purpose of the study. To ensure reliability, the validated instrument was first tested with twenty (20) journalists in Imo state which is not part of the study area. Crocbach Alpha technique was used for the analysis so as to ascertain the consistency of the instrument. The reliability coefficient obtained was 0.86 which indicated that the instrument was reliable and appropriate to be used in the study. With the assistance of research assistants, the questionnaire of this study was administered and collected on a face to face situation. The study did not make use of hypothesis. The results were presented using frequency and percentages.

Method of Data Presentation
Data were presented using frequency table and percentages

Research question one: What is the level of awareness of artificial intelligence for news production among journalists in Ebonyi state?

Variables	No. of Respondents	Percentage
Yes	250	100%
No	0	0
Total	250	100%

The above table sought the respondents opinion on whether they are aware of the use of artificial intelligence for news production, and all the 250 respondents representing 100% of the journalists in Ebonyi state responded in affirmative. The implication is that journalists in Ebonyi state are all aware of this new technical innovation called artificial intelligence in the area of news production.

Research question 2: Are journalists in Ebonyi state willing to be trained to acquire skills of Artificial intelligence?

Response category	Frequency	Percentage
Yes	192	76.8%
No	47	18.8%
Undecided	11	4.4%
Total	250	100 %

The response from the respondents indicated that there is 76.8% willingness to be trained in order to acquire skills for artificial intelligence, not willing to acquire AI skills scored 18.8% which is also high, indicating that more awareness needs to be created on the need to acquire skills of AI for news production. Moreover 4.4% of the respondents were undecided on the question and this could not be translated but it did not in any way affect the result of the findings.

Research question 3: what aspect of news production would you prefer artificial intelligence?

Variables	Frequency	Percentage
Video coverage	45	18%
Editorial	42	16.8%
News writing	87	34.8%
News reporting	25	10%
Commentary	20	8%
Documentary	31	12.4%
Total	250	100%

Responses from the above table indicated that the respondents have variation of preferences for where they want artificial intelligence to be deployed in news production. 34.8% preferred it be deployed in news writing, 18% indicated its deployment to be channeled to video coverage, 16.8% preferred it in editorial aspect of news production, and again 12.4% preferred it to be used in the aspect of documentary. The preference of artificial intelligence in the aspect of news reporting scored 10% while in the aspect of commentary scored 8%. The implication is that the respondents have different opinion on the aspect of news production they want artificial intelligence to be deployed. The good thing is that artificial intelligence can actually be deployed in all the aspects pointed out.

Research question four: What fears do journalists in Ebonyi state have on artificial intelligence for news production?

Response category	Frequency	Percentage
Fear of AI to mass unemployment	93	37.2%
Fear of ethics of journalism misappropriation	40	16%
Fear of feeding AI with the Wrong data	28	11.2%
Only experts can operate it	50	20%
Fear of bias of its creator	39	15.6%
Total	250	100%

The implication of the above table revealed that fears associated with acceptance of AI in news production are basically fear of mass unemployment, fear that only experts can operate artificial intelligence, fear of ethics of journalism misappropriation, fear of bias by AI creator and fear of feeding AI with a wrong data which by implication will also bring out a wrong output.

DISCUSSION OF FINDINGS

Discussions here are based on the research questions.
The response gotten from the respondents indicated that all journalists registered under the aegis of the Nigerian union of journalists (NUJ) in Ebonyi state are aware of the use of artificial intelligence for news production. On their willingness to be trained to acquire skills on artificial intelligence, their acceptance varied, majority of the respondents which gave 76.8 percent were willing to be trained for the acquisition of AI skills. The research also found that the respondents have variation of preferences for aspect of journalism they want artificial intelligence to be deployed for news production such as news writing, video coverage, editorial, documentary, and commentary aspect. The preference of artificial intelligence in the aspect of news reporting was low owing to the fact that news reporting is traditionally done by human journalists. The study also found that fears associated with acceptance of AI in news production by journalists in Ebonyi state are basically fear of mass unemployment, fear that only experts can operate artificial intelligence, fear of ethics of journalism misappropriation, fear of bias by AI creator and fear of feeding AI with the wrong data which will in turn bring out a wrong output.

CONCLUSION

This study investigated the extent of awareness of artificial intelligence for news production among journalists in Ebonyi state. Artificial intelligence for news production has become an important way of news production in both developed and developing nations of the world. The use of artificial intelligence for news production has changed the dynamics of journalism as all the journalists in Ebonyi state are aware of this new technology and what it stands for. Journalists in Ebonyi state are willing to acquire skills for artificial intelligence because they understands that it can make work of journalism easier but there is also fear by journalists that this could create mass unemployment by displacing many of them from their media organisations. According to (Nsude, 2020), AI could completely transform the newsroom and the work of journalists by demanding new skills among journalists and the need for a new and good work flows.

However, artificial intelligence for news production approach is something to welcome because the world is fast moving into the Age of Artificial Intelligence and any profession or country that fails to follow the trend could be left out and possibly become analogue and outdated.

Recommendations
Based on the findings of this study, the following recommendations were made for proper awareness of artificial intelligence for news production.
1.Every channel that is available, including opinion leaders and the media, should be used to create awareness about artificial intelligence for news production.
2.Journalists should all brace up to be trained and retrained on AI skills acquisition in order to be acquainted on how to collaborate with AI machine to obtain the best result because the technology

has come to stay and will continue to improve over time.

3.The media should step up their enlightenment drive about the existence of AI to reorient journalists mentality and behavior towards AI and make them not only aware but to understand that AI can be employed in all aspect of news production.

4.Journalists should also be aware that artificial intelligence has not come to cause mass unemployment but has come to create more employment for those journalists with special skills on how to work with AI which compliment the traditional way of news production and make larger work of the journalist easier, faster and timelier.

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