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Said Farek
E-mail: saidfarek8@gmail.com
Orcid: https://orcid.org/0009-0003-1009-3722
Badji Mokhtar University, Faculty of Humanities and Social Science. Annaba, Algeria.

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The challenges of online journalism in light of artificial intelligence technologies

ABSTRACT

The objective of this study was to analyze the main challenges facing online journalism with the increasing integration of artificial intelligence technologies, as well as their professional, ethical, and future implications. The work seeks to understand how these technologies are transforming journalistic practices, news production models, and the relationship between journalists, audiences, and content. The methodology employed was theoretical-analytical, based on a critical review of specialized literature on artificial intelligence, digital journalism, and communication studies. Fundamental concepts, characteristics, and areas of application of artificial intelligence were analyzed, as well as its benefits and risks in the field of online journalism, drawing on previous studies and conceptual approaches. The results demonstrate that artificial intelligence offers significant benefits to online journalism, such as increased efficiency, automation of routine tasks, content personalization, and improved analysis of large volumes of data. However, significant challenges were also identified, including the spread of fake news, algorithmic bias, job losses, privacy risks, and a decline in journalistic creativity. The study concludes that artificial intelligence does not completely replace journalists but rather redefines their role, demanding new technological and ethical skills. The future of online journalism will depend on the balance between leveraging these technologies and preserving the profession's core values, especially credibility, social responsibility, and journalistic ethics.

Keywords: Technology, artificial intelligence, online journalism, human intelligence.

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Los desafíos del periodismo electrónico a la luz de las tecnologías de inteligencia artificial

RESUMEN

El objetivo del estudio fue analizar los principales desafíos que enfrenta el periodismo electrónico ante la incorporación creciente de las tecnologías de inteligencia artificial, así como sus implicaciones profesionales, éticas y futuras. El trabajo busca comprender cómo estas tecnologías están transformando las prácticas periodísticas, los modelos de producción informativa y la relación entre periodistas, audiencias y contenidos. La metodología empleada fue de tipo teórica–analítica, basada en la revisión crítica de literatura especializada en inteligencia artificial, periodismo digital y estudios de comunicación. Se analizaron conceptos fundamentales, características y áreas de aplicación de la inteligencia

artificial, así como sus beneficios y riesgos en el ámbito del periodismo electrónico, apoyándose en estudios previos y enfoques conceptuales. Los resultados evidencian que la inteligencia artificial aporta importantes beneficios al periodismo electrónico, como el aumento de la eficiencia, la automatización de tareas rutinarias, la personalización de contenidos y la mejora en el análisis de grandes volúmenes de datos. No obstante, también se identificaron desafíos relevantes, entre ellos la propagación de noticias falsas, los sesgos algorítmicos, la pérdida de empleos, los riesgos para la privacidad y la disminución de la creatividad periodística. Se concluye que la inteligencia artificial no sustituye completamente al periodista, sino que redefine su rol, exigiendo nuevas competencias tecnológicas y éticas. El futuro del periodismo electrónico dependerá del equilibrio entre el aprovechamiento de estas tecnologías y la preservación de los valores fundamentales de la profesión, especialmente la credibilidad, la responsabilidad social y la ética informativa.

Palabras clave: Tecnología, inteligencia artificial, periodismo electrónico, pnteligencia humana.

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Os desafios do jornalismo online a luz das tecnologias de inteligencia artificial

RESUMO

O objetivo deste estudo foi analisar os principais desafios enfrentados pelo jornalismo online com a crescente integração das tecnologias de inteligência artificial, bem como as suas implicações profissionais, éticas e futuras. O trabalho procura compreender como estas tecnologias estão a transformar as práticas jornalísticas, os modelos de produção noticiosa e a relação entre jornalistas, público e conteúdos. A metodologia empregue foi teórico-analítica, tendo por base uma revisão crítica da literatura especializada em inteligência artificial, jornalismo digital e estudos de comunicação. Foram analisados conceitos fundamentais, características e áreas de aplicação da inteligência artificial, bem como os seus benefícios e riscos no âmbito do jornalismo online, com base em estudos anteriores e abordagens conceptuais. Os resultados demonstram que a inteligência artificial oferece benefícios significativos ao jornalismo online, como o aumento da eficiência, a automatização de tarefas rotineiras, a personalização de conteúdos e a melhor análise de grandes volumes de dados. No entanto, também foram identificados desafios significativos, incluindo a disseminação de notícias falsas, o enviesamento algorítmico, a perda de emprego, os riscos para a privacidade e o declínio da criatividade jornalística. O estudo conclui que a inteligência artificial não substitui completamente os jornalistas, mas redefine o seu papel, exigindo novas competências tecnológicas e éticas. O futuro do jornalismo online dependerá do equilíbrio entre o aproveitamento destas tecnologias e a preservação dos valores essenciais da profissão, sobretudo a credibilidade, a responsabilidade social e a ética jornalística.

Palavras-chave: Tecnologia, inteligência artificial, jornalismo online, inteligência humana.

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INTRODUCTION

Artificial intelligence is viewed as a technological revolution that has revolutionized many concepts and assumptions associated with the media industry in general. Smart technologies have imposed a new reality on electronic journalism, bringing about changes in several areas, including professional practice. Regulatory frameworks and the nature of the roles of communicators and the public itself have changed in receiving content as positive consumers and creators across various digital media and interacting with social media networks. The one-way media system no longer exists. Artificial intelligence in the media has produced practical dimensions, which media studies view as a media and technological revolution that requires... Further research and investigation are needed to establish

specialized scientific foundations and new theories that are consistent with the nature, characteristics, and properties of smart media. Although there is agreement that the use of this artificial intelligence will contribute to improving journalistic performance, with the increased frequency and speed of news dissemination, it is difficult to verify the credibility of the message or its source. This has created disagreement among communication scholars, practitioners, and the public regarding the extent of the success of using smart technologies in journalistic work, the nature of their role, how the public will understand them, and the extent of their awareness of their levels of credibility. Artificial intelligence is gradually transforming the work of online journalism, affecting all steps from production to consumption, from creation to production. On the production side, information gathering and synthesis leverages increasing technological advances to facilitate comprehensive analysis and examination of heterogeneous information sources in multiple languages, including linked open data and crowdsourcing to help verify information and facts on a large scale (known as fact-checking).

The Problem

Based on the above argument, artificial intelligence is among the variables emerging in current studies that require in-depth research. With the tremendous and rapid development witnessed in the twenty-first century due to the information and communications revolution, electronic journalism has turned to the use of artificial intelligence technologies in the field of receiving and disseminating information and news. Consequently, the use of artificial intelligence software may perform the same work in less time and with greater efficiency.

Amid the contraction in the journalism and media industry, employment prospects have diminished to accommodate graduates hoping to enter it. Even those lucky enough to secure a full-time job are often met with low incomes and a lack of work-life balance. They suffer from creative burnout and uncertainty, similar to the media, and struggle to survive.

All these challenges compelled us to produce this article. In it, we examine how the world has explained the state of the profession, what the solutions are, and how we can survive. We explore the future of a profession that has withstood the challenges of every era, from radio to television to the internet, and can endure into future eras as well. Between dying jobs, reviving jobs, and jobs created by technology, the study's problematic is crystallized in the following main question:

What are the challenges facing online journalism in light of artificial intelligence technologies and its ethics?

The following sub-questions branch from the main question:

-What is artificial intelligence?

-What is online journalism?

-What has online journalism benefited from artificial intelligence technologies?

-What are the downsides of using artificial intelligence in electronic journalism?

-What is the future of electronic journalism in light of artificial intelligence?

Study Concepts:

Technology:
Technology represents the applied aspect of science, i.e., it is the activity through which science is translated into reality. It translates the latest developments in the human mind in terms of modern and advanced technological tools and methods that facilitate life for people in various fields (Kusiak, 1987; Jones, 1997; Hilkert, 2008). Their primary goal is to save time and effort and make life less complicated. These methods also contribute to narrowing the distances separating worlds, turning the world into a small village. Through modern technologies, people can access everything they want in the easiest ways and with the least

physical and mental effort required. Thus, science differs from technology in that science is theoretical, while technology is applied (Danzmann & Rüdiger, 2003). Furthermore, science is achieved through observation, learning, memorization, and understanding, whether intentional or unintentional, while technology requires prior training and qualification to be able to use it. Both share the same goal of serving humanity greatly and being an inevitable tool for a better future and life (Haidar, 2019, pp. 285-286)

Artificial Intelligence:

Artificial intelligence, sometimes called machine intelligence, is the intelligence demonstrated by machines or computers in an attempt to simulate and sometimes surpass human intelligence. Accordingly, artificial intelligence represents creative content written via chat, in the form of a question posed by a human and answered by artificial intelligenc .(Solanki & All, 2021).

Artificial intelligence (AI) is a branch of computer science that deals with intelligent computer systems. These are systems that possess intelligence-related features and decision-making capabilities similar to human behavior, including language, learning, and thinking (Abdel Fattah Hassanein Qeshti, no date, p. 11; Chen et al., 2020 ; Chen et al., 2022).

We can conclude from the above that there are many definitions of artificial intelligence, depending on their uses and fields. These definitions agree on their content but differ in their terminology and meanings.

Electronic Journalism:

Electronic journalism is one of the most recent forms of journalistic media, emerging from technological developments, such as automation, smartphones, and the expansion of the Internet (Boczkowski, 2004; Santos-Hermosa et al., 2022). Electronic journalism has gone through four main stages, beginning with the adoption of fax in newspaper production (Sadiku et al., 2021), followed by the adoption of information technology in newspaper production, the emergence of the Internet and the Web, and finally digital and smart electronic medi (Ali, 2020; AlShehri & Gunter, 2002).

Electronic journalism is produced and published via the Internet in the form of newspapers printed on computer screens, covering new pages and including text, images, graphics, sound, images, and movement (Al Nashmi et al., 2018; Al-Faisal, 2005, pp. 77-78).

Fayez Abdullah Al-Shehri defined it as: "A technological integration between electronic computers and their enormous capabilities for storing, organizing, categorizing, and retrieving information in seconds, and the tremendous development in mass communication methods that have turned the world into a small electronic village" (Darwish Al-Labban, 2005, p. 41).

Characteristics of Artificial Intelligence:

Ability to represent knowledge: Artificial intelligence programs incorporate a method for representing information, through which they use a special structure to describe knowledge (Wang et al., 2022; Kharchenko et al., 2022). This structure contains facts, the relationship between them, and the controls that connect these relationships (Ashrafi & Javadi, 2024. The set of knowledge structures together constitutes the knowledge base, which provides the greatest possible amount of information about the problems to be solved. The smart learning program contains two types of knowledge:

-Knowledge related to the subject matter of the program being taught, which varies depending on the program.

-Educational knowledge, which is knowledge related to the rules for teaching the subject matter, which is constant across disciplines.

Using the optimistic heuristic method:

An important characteristic of artificial intelligence is that its programs tackle problems for which there is no known general solution. This means that programs that use sequential steps lead to the correct solution, but choose specific methods for solving problems that seem preferable, while retaining the possibility of changing the method if it becomes clear that the first option leads to a solution quickly.

Ability to handle incomplete information: Artificial intelligence applications work to find some solutions even if the information is not fully available at the time the solution is required. The implications of incomplete information lead to less realistic and objective conclusions, while the conclusions may be incorrect.

Ability to learn: The ability to learn from previous experiences and acquisitions, in addition to the ability to develop performance. This ability is linked to the ability to generalize information and infer similar experiences, selectivity, and neglect of some unwanted information. In addition, the smart computer has the ability to change its teaching behavior to match the behavior of the students interacting with it. It may seem to the program that students learn a certain lesson with a specific strategy and method better than other methods, which leads the program to make it a priority within its teaching methods, as an expert professor does with students who are accustomed to dealing with them, so he has the ability, more than others, to develop the appropriate strategy to give them knowledge.

Inference Capability: This refers to the ability to infer possible solutions to a specific problem from reality and previous knowledge and experience, unlike problems that cannot be solved using traditional tools. This capability is achieved on computers by storing all possible solutions, in addition to using inference rules or methods and the laws of logic.

Natural Language Processing: One of the distinguishing features of smart learning software is interaction via the user's natural language. The quality of communication between the software and the learner improves significantly if the software can understand the learner's natural language input, whether written or spoken. This fosters effective dialogue, diagnoses learner errors, advances in natural language processing, and aids in language comprehension and production. (Muqatil & Hosni, 2021, pp. 115-117)

Areas of Artificial Intelligence:

N**atural Languages:** Language has evolved, and branches of computational linguistics and physiology have flourished through recognition, understanding, sound synthesis, and machine translation.

Hierarchical search: This includes the search mechanism and its various types, as well as the development of expert systems, through computer vision and computers. This contributed to the development of fingerprint recognition techniques and the development of electronic tools and technologies that mimic the natural human vision system.

Computer hardware components: This contributed to the development of electronic algorithms and the development of computer science in general.

Cognitive modeling of perception: This contributed to many sciences, including psychology, philosophy, human skills, neuroscience, physiology, and music.

Knowledge representation: This contributed to the development of philosophy, computer science, computer science, and systems theory.

Robotics: This includes branches of mechanical engineering, industrial robotics, control, electronics, and cybernetics, which have developed thanks to it, contributing to the economic and scientific fields.

Programming languages and systems: This has influenced computer science and computer science with languages that aid in the manufacture of innovative systems.

Theory of computation and automatic programming: This has contributed to the development of mathematics and computer science.

Knowledge Engineering (Expert Systems): It has influenced many sciences, such as medicine, chemistry, management sciences, civil engineering, and the petroleum industry, and has led to significant economic transformations, saving significant sums of money.

Games and Competitions: Games have influenced the advancement of artificial intelligence by incorporating user intelligence into programs. They have also contributed to the development of computer science and management competitions.

Providing Solutions to Problems: They have contributed to the development of psychology, logic, and mathematics. (Abdel Fattah Hassanein Qeshti, no date, pp. 13-14)

The potential and benefits of artificial intelligence in digital journalism:

-Performing simple tasks and freeing journalists from engaging in more complex qualitative reporting.

-Enhancing communication and collaboration among journalists.

-Enabling journalists to sift through a vast array of data, text, images, and video.

-Helping journalists better communicate and engage with their audiences.

-Enabling the creation of entirely new types of journalism. (Musa Ibrahim Saqr , 2021, p. 683)

The benefits include the following:

Increased audience engagement, as AI can better understand its audience and preferences.

Increased efficiency by offloading repetitive, mundane tasks to AI. Distributors save time and energy, which can be spent on more demanding tasks.

AI has the potential to increase business productivity by 40%. With AI on your side, advertising is smarter, and you can target prospects and customers with the right message at the right time. Targeting content using AI to track audience behavior and preferences on social media will give you a clear understanding of how to engage them. Reducing advertising costs while improving return on investment (ROI) can also help social media marketers increase revenue and reduce costs (Musa Ibrahim Saqr , 2021, p. 384).

AI technologies in online journalism include the following:

Automatic content collection: AI is used to collect, analyze, and compile news from various sources in one place, helping journalists track events more quickly.

Text analysis: AI tools are used to analyze and classify texts, such as sentiment analysis to understand audience reactions or categorize news by topic.

Text generation: AI can automatically write news reports or summaries based on available data, saving journalists time in preparing content.

Improving the reader experience: AI is used to personalize content and display personalized recommendations to readers based on their behavior and preferences.

Fake news detection: AI algorithms help identify inaccurate or misleading information by verifying sources and analyzing text.

Facial and image recognition: Image recognition technologies are used to analyze photographs or videos and identify people or objects in them, contributing to improved quality and security.

Machine Translation: AI technologies contribute to the rapid and accurate translation of news into multiple languages, helping expand access to news globally. (Muhazi & Bouchkoura, 2023, pp. 85-86)

These technologies help improve the efficiency and quality of online journalism and allow journalists to focus on the creative and analytical aspects of their work.

Despite the benefits of AI technologies in electronic journalism, there are some potential drawbacks, including:

Misleading content and fake news: AI can contribute to the spread of misinformation if the data is not thoroughly verified, as algorithms can be used to spread fake news or distort facts.

Algorithmic bias: AI algorithms can reinforce biases present in the data they are trained on, leading to biased or unbalanced reporting.

Job loss: Automation in news writing and data analysis could reduce the need for human journalists, potentially causing job losses in the field.

Data Reliance: AI technologies rely on big data, and inaccurate or incomplete data can negatively impact content quality.

Privacy and Security: The use of AI to collect and analyze user data can raise privacy concerns, especially if the data is not properly secured.

Repetition and Lack of Authenticity: Automation can lead to duplicate or unoriginal content, as algorithms can generate overly similar or repetitive text.

Impairment of Human Accuracy: Excessive reliance on AI can reduce the careful verification and in-depth analysis performed by human journalists, impacting the quality of information provided. (Hassan Iman , pp. 242-243)

Balancing the benefits of AI technologies while being aware of these drawbacks is important to ensure a positive impact in online journalism.

Ethics of AI in electronic Journalism:

-Transparency: It must be clear when and where AI is used in content production. This includes clarifying when AI tools are used to collect, analyze, or even write articles.

-Accuracy: AI-based tools need to be accurate and reliable. Errors in information or biases in data can lead to the spread of misinformation.

-Bias: AI algorithms must be designed to minimize bias and avoid reinforcing preconceptions or social biases.

-Privacy: When using AI to collect and analyze personal data, individuals' data protection and compliance with privacy laws must be ensured. (Boughalem, 2024, p. 23)

-Security: Measures should be taken to protect systems from breaches that could lead to the spread of misinformation or influence news content.

-Accountability: There must be accountability for how AI is used in journalism. Accountability includes reviewing the content generated and ensuring it meets ethical standards.

-Providing these aspects helps ensure that AI enhances the quality of journalism and strengthens its credibility, rather than undermining it. (Sedar & Touati , 2022, pp. 273-276)

The Future of electronic journalism in Light of the Uses of Artificial Intelligence:

Artificial intelligence applications have provided numerous uses for the media, particularly **electronic journalism**, that have impacted the form of content, the nature of the message, and the relationship of media professionals with their sources and audiences. Smart applications have also become a significant part of societal awareness, influencing it in a way that aligns with fast-paced lifestyles. A study conducted by the Associated Press predicts that by 2027, newsrooms will have an arsenal of AI devices and smart robots. Journalists will work to easily integrate smart machines into their daily workflow. Machine intelligence will be able to do more than just produce live news reports using automated systems. Global

media outlets are moving toward keeping pace with the smart digital transformations in the communications environment, which are expected to enhance the quality and capacity of news coverage, while focusing on promoting localism and specialization. The increased reading of news and texts, the increased viewing of program excerpts on small portable screens, and a sharp decline in people reading their printed newspapers or following their favorite channels are also expected. Artificial intelligence-driven electronic journalism will also gain importance through the new models it will produce, which differ in their concept, features, characteristics, and means from previous media models. It will also differ in the impact of its modern methods, which have achieved far-reaching goals in terms of depth of impact, strength of guidance, and severity of danger. This has led to fundamental transformations in the role of the media, making it a fundamental axis in the system of Umaymah society. Artificial intelligence applications have created platforms capable of effecting tangible changes in the minds and behavior of their clients through different values that they adopt, and which are not subject to traditional oversight like other media outlets. Through them, collective public opinion is formed, patterns of thinking are determined, and societal habits and behavior are changed, which necessarily leads to regulation and codification, as digital media operates according to its own laws. Therefore, linking the aforementioned axes and their repercussions on journalistic work is important to identify the potential impacts on digital media, after a number of media sites began to rely on the smart model and focus on applying its technologies, as it is essential for all media strategies in the future, in light of the transformations in the electronic landscape of individual life into a free electronic journalistic space (Musa Ibrahim Saqr , 2021, pp. 635-636).

The challenges of electronic journalism under the use of artificial intelligence include:

Verification of information: Increased reliance on artificial intelligence can make it difficult to verify the accuracy of information. Algorithms may promote fake news or inaccurate information if not adequately verified.

-Algorithmic bias: AI may replicate biases present in the data on which systems are trained, potentially leading to biased or unbalanced content.

Privacy and security: The use of artificial intelligence to analyze personal data may raise concerns about privacy protection and information security, especially if appropriate ethical and security practices are not adhered to.

Retention of human employees: Automation may reduce the need for some journalistic positions, creating challenges in retaining and training staff.

Quality and originality: Automation in content creation may reduce quality and originality, as texts can be routine and uninspiring.

Impact on creativity: Excessive reliance on artificial intelligence may impact the creative side of journalism, limiting innovation and experimentation in news presentation methods.

Censorship and Manipulation: The use of AI to filter information or personalize news can lead to censorship or manipulation of content, impacting freedom of expression and diversity of information.

These challenges require a delicate balance between the use of AI technologies and the achievement of basic journalistic standards to ensure the provision of reliable and transparent information (Musa Ibrahim Saqr , 2021, pp. 635-636).

CONCLUSION

From the above, we can discern important facts that predict significant developments in technology in general and artificial intelligence technology in the field of journalism, which will witness very significant transformations, especially in the field of media, which is constantly evolving. This will also open the way for competition between artificial intelligence

(i.e., machines) and humans, such as news presentation, dialogue management, and content writing. Many professions in the field of journalism will also be affected by this disturbing technology, which will work to restrict freedoms related to freedom of expression, as content will be further controlled by major technology companies, which currently control the flow of information, its focus, and its production. We will later live with robots that do not make mistakes or criticize, but rather read without ceasing to provide news and information around the clock, but in images that mimic humanity. It is as if all those fictional films you see today were only the beginnings of a different future that began before the presentation of "Lieutenant Al-Rafai, who emerged as the beginning of the end for journalism and many of its aspects, which have always relied on the human element as a creator and possess the ability to analyze and criticize." The growing presence of artificial intelligence in the newsrooms of electronic newspapers leaves no room for traditional journalists who spend their time Most of their time is spent writing and editing news that comes to them from various traditional and digital sources, because algorithms based on artificial intelligence perform this role with great speed and focus.

Artificial intelligence related to journalism and media practices poses major challenges to contemporary media training institutions, as it forces them to integrate more educational programs related to information technology and its digital applications, leading to artificial intelligence, which represents the pinnacle of digitization. Perhaps this citation is the most optimistic in terms of the future that awaits not only journalism as a profession, but also human life, which is moving towards technology linked to the human body. Perhaps the controversies that will later be the subject of discussion will raise points of shadow that are not yet understood in the repercussions of artificial intelligence and its consequences, especially from the ethical perspective, which is a fundamental pillar of journalism in general, as well as what is related to the limits of freedoms, personal life, and the place of humans in these complex global systems.

LIMITATIONS OF THE STUDY

The study has limitations stemming from its theoretical and descriptive approach, as it does not include empirical work, case studies, or statistical data that would allow for a quantitative measurement of the real impact of artificial intelligence on digital newsrooms. Furthermore, the analysis is based primarily on secondary literature, which may limit the updating of some findings in light of rapid technological advancements.

FUTURE RESEARCH

It is recommended that future research incorporate empirical methodologies, such as interviews with journalists, automated content analysis, and comparative studies between traditional and digital media. It is also pertinent to delve deeper into the ethical and regulatory frameworks governing the use of artificial intelligence in journalism, as well as the academic training necessary to prepare professionals for these technological changes.

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