

Exploring Changing Practices and the Influence of Artificial Intelligence on Modern Journalism

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Abstract: *Journalism in the rapidly evolving modern world is undergoing significant transformation due to the rise of artificial intelligence applications. In the digital age, various technological advancements such as the internet services, cloud computing systems, three-dimensional printers, and cybersecurity are used. The study explores the impact of artificial intelligence (AI) on modern journalism, including its transformative effects on news production, distribution, and consumption. This study explores the intricate relationship between AI applications and evolving journalism practices. Through an analysis of industry trends and case studies, we have identified the multidimensional impact of the applications on newsrooms, information collections, and reporting. We have highlighted both the opportunities and challenges brought about by this technological paradigm shift in the field. The study aims to offer a detailed comprehension of the developing relationship between artificial intelligence (AI) applications and contemporary journalism. The results provide significant insights for scholars, practitioners, and stakeholders concerning the dynamic intersection of technology and media.*

Introduction

The ability to communicate in society is as crucial as basic needs for human beings to continue their existence. Throughout history, we have witnessed constant changes in factors that affect our lives, such as human communication and consumption behaviours. Information and technology are the main drivers of this change. In our current environment, we observe rapid technological advancements that have drawn people into the digital world. In the modern digital age, the internet has removed the limitations of time and space, facilitating communication between individuals and groups. In the 1990s, computers and the internet gained popularity due to their accessibility, speed, and affordability. Today, technological advancements continue to revolutionize the industrial sector. In the digital age, many sectors, including industry, have undergone revolutionary changes. It is important to note that these changes have led to cultural, political, economic, and social innovations. Traditional media has also been impacted by the internet, with newspapers, television, and radio all affected. The mainstream media's use of the Internet has led to the adoption of specialized content on this platform, resulting in a shift from a one-way communication model to a two-way communication model. This change has made the previously passive reader an active participant.

Internet technology has created a new interactive environment for the reader. Internet journalism promotes the use of multimedia. In the mid-1990s, the term 'new media' emerged as a replacement for 'multimedia.' This has eliminated the boundaries of interpersonal communication. The new media is considered a tool for distributing interactive information (Uçak, 2018). This has

enabled society to be informed about breaking news through internet technology. Online journalism has changed many aspects of traditional journalism, including access to news, presentation of news, and working conditions of journalists. Furthermore, a new audience has emerged that does not receive all available data. This audience consists of individuals who interact with and contribute to the formation of news, and are experienced in using new media (Akyazi, 2018).

In the digital age, various technological advancements such as the Internet services, cloud computing systems, three-dimensional printers, and cybersecurity are used (Akgül, 2019). Artificial intelligence technology has enabled the use of robotics and software to complete time-consuming tasks in a significantly shorter amount of time. Furthermore, the use of artificial intelligence has alleviated physical labour in many areas. Nowadays, artificial intelligence technology has entered a new dimension with machine learning and is constantly learning by recording automatic experiences and data. This has raised many controversial issues, increasing the responsibilities of society, states, and individuals (Bulut, 2019).

Artificial intelligence technology has given rise to main topics such as storytelling, natural language formation, and natural language generation. AI algorithms can automatically create news stories from structured data and present them without human intervention (Aljazairi, 2016). The technology scans data from the pool in seconds and transforms it into readable story formats in less than a second. The emergence of robot journalism describes the new structure resulting from this technology. Many institutions and organizations worldwide have developed algorithms that write large amounts of news stories without human intervention, including prominent names such as Associated Press and The Guardian. Algorithm journalism, a new form of journalism, adjusts stories based on the audience profile (Latar, 2021).

The study was limited to computer engineers, artificial intelligence experts, technology experts, communication science experts, academics, and journalists. It examines the transformation of AI journalism within the scope of artificial intelligence technology, natural language generation, machine learning, and their impact on journalism. The study's subject selection focuses on the effects of AI's journalism on the journalism sector, as well as the production and content of news. Other topics are not within the scope of this study. To comprehend the impact of robot journalism globally and in Turkey, this study underwent a thorough evaluation based on three pillars of AI journalism: artificial intelligence, communication science, and journalists. The term 'New Media' was coined by McLuhan in 1953 in his article 'The Latter Innis' (McLuhan, 1953). According to Firlar (2010), some of the names of the new media are online, offline, interactive, and social media. In the new modern age, journalism is facing challenges like adapting to rapidly changing practices and embracing the transformative influence of artificial intelligence programs.

The revolutionary changes in technology that have occurred in recent years have had a profound impact on all areas of society. One area where technology is becoming increasingly prevalent is the industrial sector. This has led to the emergence of new business areas. These changes have facilitated easier access to information, with a greater number of sources of information, which has resulted in information spreading much more rapidly. From the perspective of society, the rapid change was accepted, and this change marked the advent of the digital age. It can be argued that the automation feature of artificial intelligence has also caused significant shifts in the journalism industry (Van-Dalen, 2012). Journalism has entered a new phase with news content written automatically by machines. Technology has assumed a pivotal role in the media sector. The advent of digital content has prompted authors with an interest in the subject to adopt a positive stance towards technological developments in the media and journalism sectors (Ali & Hassoun, 2019).

In light of the aforementioned developments, it has become unavoidable for artificial intelligence to make its way into the realm of journalism. In recent years, automatic journalism, or robot journalism, which encompasses applications related to artificial intelligence technology, has garnered significant attention due to its innovative and unprecedented utilisation in the evaluation of technological processes, such as those pertaining to software programs and natural language

generation. The algorithms of this technology permit the autonomous determination of an event and the acquisition of knowledge without external assistance (Akgül, 2019).

The introduction of rapid technological advancement has led to the emergence of artificial intelligence (AI) technology in the journalism sector. For instance, the Associated Press has been utilizing automated software that produces news since 2015. This automated software is capable of producing approximately two hundred thousand news items in one second. Artificial intelligence technology is employed in a multitude of sectors. One such sector is that of journalism. Artificial intelligence experts anticipate that the growth rate of artificial intelligence technology from 2015 to 2025 will increase annually by 50% when calculated as a percentage. In terms of the impact of artificial intelligence technology on journalistic practices, it can be observed that this technology is currently being implemented in three distinct stages (Watry, 2016).

The following are examples of the ways in which automation is transforming journalism:

- 1) Automated Daily Reporting: The application of artificial intelligence in the production of reports on the financial performance of organisations has facilitated the practicality of journalism. This technology has been employed by the Associated Press (AP) in its reporting. The partner of Narrative Science (a digital company specialising in data storytelling) has stated that artificial intelligence will produce approximately 90% of the articles.
- 2) Faster prediction.
- 3) Reducing barriers to entry.

In 2018, the robot male anchor with artificial intelligence on the Chinese Xinhua press channel presented the news in English on the news channel (Kahraman, 2018). In 2019, the Shinhua News Agency in China announced that it would be using the first robot female anchor created by a program called Xiaomeng, which is connected to artificial intelligence (Yılmaz, 2019). The application of artificial intelligence in the field of journalism in China is regarded as a significant development for the journalism sector. In recent years, it has been observed that new developments in the media are occurring in both the production and distribution of news content. These processes are carried out automatically through news bots. Social bots are defined as intelligent, automated producers. Automatic software connected to artificial intelligence has the capacity to imitate human behaviour as a result of observation (Lokot & Diakopoulos, 2016). Thanks to the capabilities of artificial intelligence, it can communicate with countless users on social media.

The utilisation of artificial intelligence in the journalism sector will facilitate the digitalisation of journalism. When the digitalisation process is evaluated in its historical context, it is evident that the digitalisation process was initiated with the advent of the internet in the media environment in the 1970s. It is apparent that experts and academicians approach the future of artificial intelligence within the framework of disparate opinions. When artificial intelligence technology is evaluated in terms of people, negative opinions are emphasised, suggesting that it will have a detrimental impact on them. The underlying rationale for these perspectives is related to the potential scale of the adverse impact of artificial intelligence technology. Another negative view is based on the concern that human work will be replaced by robots (Akgül, 2019, p. 58). Given the current capacity of artificial intelligence technology, it is possible to predict the accuracy of this concern.

Impacts of Artificial Intelligence on Journalism

In the context of the information age, the continuous increase in the distribution of information through social networks has led to a shift in the role of traditional media institutions and organisations. These entities have begun to benefit from emerging new technologies and to make more effective use of them. The accumulation of more information and the rapid advancement of technology have led to changes and transformations in the journalism sector. As artificial intelligence becomes increasingly prevalent, it has become evident that this technology is being employed in the journalism sector, with the understanding of news undergoing a transformation. When journalism is evaluated in a professional context, it is evident that the quantitative form is employed with greater frequency within the scope of artificial intelligence (Coddington, 2014). As outlined by Loosen (2018), there are four significant new forms of journalism that are connected to the field of artificial intelligence.

These are:

1. Data Journalism
2. Algorithm Journalism
3. Automated Journalism
4. Measured Effective Journalism

The advent of artificial intelligence (AI) technologies is revolutionising journalism and the news production process. The aim of this study is to define AI technologies and their use in the field of journalism. The uses of artificial intelligence in journalism are diversifying in parallel with the speed of technology, and AI technologies are increasingly integrated into every stage of the news production process. The diversification of technology also leads to a conceptual diversification in the field. Nevertheless, there is a lack of clarity regarding the fundamental distinctions and concepts pertaining to the nature of artificial intelligence, the technologies that can be considered within the domain of artificial intelligence, and the extent to which news automation systems can be regarded as an example of artificial intelligence. As the scale of use of Chat-GPT-like technologies based on generative artificial intelligence, which produce outputs such as text or visuals like human production, expands and spreads to the whole society, discussions on the impact of these technologies on all professional groups and awareness and curiosity about these technologies are increasing in almost all segments of society. One of the areas where these technologies are used the most is the media, especially journalism. In conjunction with the rapid developments in technology, the introduction of artificial intelligence technologies into the news sectors has brought about considerable changes in journalism and journalistic practices. This has prompted both journalists and researchers working in journalism to turn their attention to this subject. The term 'artificial intelligence' is becoming an increasingly popular topic in both media and academic studies, with the number of discussions, files, news, research, and articles on artificial intelligence rapidly increasing. In these studies, a plethora of novel, interrelated, yet distinct concepts pertaining to artificial intelligence technologies emerge. In this conceptual heterogeneity, concepts may occasionally be substituted for one another. Furthermore, numerous journalists who utilise these technologies on a personal basis, or whose media organisations employ them to a significant extent, have indicated their lack of knowledge about the specific technologies employed in the context of artificial intelligence (Etike, 2022).

The objective of this study is to identify the role of artificial intelligence in journalism and illustrate the practical applications of AI technologies in journalism for both researchers and journalists. The initial phase of the study defines artificial intelligence, elucidates its meaning within the context of journalism, and delineates the related concepts. The second part of the study defines the areas, applications, programs, and practices where artificial intelligence technologies are used concretely in the news production process. When the term 'artificial intelligence' is mentioned in the context of journalism, it is often associated with algorithmic journalism, automated journalism, big data journalism, or forms of journalism based on data. Additionally, the concept of personalised news content or algorithms that personalise the entire news production process is frequently considered. At this point, the question of whether automation or automated news systems can be considered within the field of artificial intelligence or as a part of it is an important issue of debate.

It has entered a phase of rapid development and has begun to integrate deeply with various industries. The application of computer graphics, computer-aided design, agile design, and other technologies has gradually deepened, accompanied by a qualitative leap in modern content creation theories and methods (Li, 2019). The creation of content is a fundamental aspect of marketing, education, and the dissemination of news in numerous other industries. Artificial intelligence technologies offer a range of tools and methods that can be employed to enhance the efficiency and effectiveness of content creation processes. The most prominent of these methods and tools are discussed in the following paragraphs.

The utilisation of artificial intelligence in content creation is of significant importance, as it enables the analysis of data and the generation of personalised content that is likely to resonate with the target audience. In recent years, there has been a period of rapid advancement within the

field of artificial intelligence. As a result, this technology has become incorporated within numerous sectors. The application of computer graphics, computer-aided design, agile design, and other technologies has gradually deepened, resulting in a qualitative leap in modern content creation theories and methods (Li, 2019). The creation of content is a fundamental aspect of marketing, education, and the dissemination of news in a multitude of industries. Artificial intelligence technologies provide a plethora of tools and methodologies that can be employed to enhance the efficiency and efficacy of content creation processes.

Artificial Intelligence in News Industry

The rationale behind the utilization of artificial intelligence technologies is the quest to identify solutions to complex problems, such as the analysis of vast quantities of data in the context of digitalization, and the inability of humans to keep pace with the exponential growth of data. Consequently, the term 'big data' encompasses verification and value determination, given its high volume, speed and diversity due to its structure. The utilization of big data is as crucial for journalism as it is for other fields in the digitalization process. Furthermore, it is asserted that artificial intelligence will transform the journalism profession. The primary objective of utilizing artificial intelligence in the context of news content is to categorize existing data for a specific purpose and to identify the pertinent areas related to the news content through the use of various programmes (Ay, 2022).

A recently published report has identified competition for talent as a significant barrier of the advancement of artificial intelligence in the field of news media. It is not only the attraction of talent that is a concern, but also their retention within newsrooms that offer lower remuneration than those in the other technology sectors (Cook et al., 2021). Notwithstanding these circumstances, news organisations globally are implementing artificial intelligence solutions in their newsrooms. In recent years, newsrooms have increasingly automated the production of news stories (Linden, 2017). While some projects employ machine learning algorithms, others rely on simple automation that merely fills gaps in preexisting template stories, rather than generating content based on previous data (Biswal and Gouda 2020).

The advent of artificial intelligence technologies has the potential to significantly alter the nature of human machine interactions. This is a consequence of the fact that the development of these technologies has been accompanied by a corresponding increase in the sophistication of the algorithms used. The 21st-century restructuring of the news industry has been attributed to the advent of AI technologies, which commenced with the advent of digitalisation and the establishment of the Internet (Broussard et al., 2019; Erdal, 2011). It is crucial to acknowledge that Artificial Intelligence (AI) is not a universal solution for journalism. Rather, it represents a novel tool that necessitates a heightened level of comprehension among members of the news industry if they are to further support and empower artificial intelligence capabilities within newsrooms. It is of the utmost importance to ensure that AI implementation mechanisms comply with legal and ethical rules, without explicitly taking into account the power structures between various stakeholders (Broussard et al., 2019).

It is therefore of great importance to gain an understanding of the various subfields of AI. The advent of AI has brought with it a host of new legal and ethical considerations for news organisations in their use of AI in production and distribution, as well as for AI systems in their use of news content to learn. While the utilisation of generative AI tools in newsrooms offers advantages in terms of efficiency and innovation, it also entails the potential for inaccuracy, ethical concerns, and the erosion of public trust. Furthermore, it presents an opportunity for the misappropriation of copyrighted material created by journalists. To overcome these challenges, legislation must provide clear definitions of the categories of AI and specific descriptions for each. While it is challenging to ascertain the financial implications of developing and implementing an AI application without delving into the specifics of the project, numerous researchers have observed that the advancement of AI systems has resulted in reduced costs over recent years (De-Lima-Santos & Ceron, 2021).

As Liu et al. (2023) posit, AI technologies offer distinct advantages in content production. The enhancement of creativity is a key objective in the field of artificial intelligence. Artificial

intelligence models facilitate the generation of original images from textual prompts, thereby expanding the scope for artistic and creative expression. The process of streamlining design procedures is facilitated by the use of AI. The utilisation of AI services enables the expeditious generation of visual content, thereby optimising workflows for designers, creatives and artists. Consequently, the time and effort required for manual design tasks is reduced. The customisation of content. The aforementioned services facilitate the creation of content that is specifically designed to appeal to individual user preferences or different target audiences. This results in increased user engagement. The promotion of accessibility is also a key benefit of AI services. Artificial intelligence (AI) services permit users with limited design skills to create professional-quality visuals, thereby promoting inclusivity and democratising the design process. In addition to the aforementioned advantages, artificial intelligence technology not only emphasises its advantages and power in the field of new media, but also penetrates every aspect of human production and life.

The Evolution of Journalism Practices

Numerous techniques and methodologies of traditional journalism are undergoing a profound transformation in response to the digital evolution. Traditional methods include manual research and interviews, contemporary journalists harness AI powered tools to unearth insights and streamline the processes. Different AI based data analysis platforms, natural language processing algorithms, and automated fact checking systems are becoming integral components of newsrooms worldwide. These type of new tools augmenting journalist's capabilities and enabling deeper storytelling and reporting. AI's influence extends beyond newsroom workflows to content creation and distribution. Automated writing systems produce articles, reports, and even sports recaps at scale, challenging conventional notions of authorship and creativity. Moreover, AI-driven algorithms personalize content recommendations and optimize distribution strategies, shaping audience engagement and driving traffic to news platforms. However, concerns arise regarding filter bubbles, algorithmic bias, and the erosion of editorial control, prompting reflections on the ethical implications of AI-mediated content delivery.

The proliferation of data sources presents both opportunities and challenges for modern journalism. AI-powered analytics platforms enable journalists to extract actionable insights from vast datasets, uncovering trends, patterns, and anomalies with unprecedented efficiency. Investigative reporting benefits from data-driven methodologies, empowering journalists to uncover systemic injustices and hold powerful entities accountable. Yet, ethical dilemmas emerge concerning data privacy, transparency, and the responsible use of AI technologies in journalism.

Ethical Considerations and Challenges

As AI assumes a more prominent role in journalism, ethical considerations come to the forefront. Questions of algorithmic transparency, accountability, and the potential for misinformation pose significant challenges for news organizations. Furthermore, the automation of tasks traditionally performed by journalists raises concerns about job displacement and the erosion of human judgment in news production. Navigating these ethical quandaries requires a nuanced understanding of AI's capabilities, limitations, and societal implications.

Conclusion

To sum up, integrating AI into modern journalism heralds a new era of innovation, efficiency and complexity. While AI-powered tools offer unprecedented opportunities to enhance journalistic practices, they also pose ethical challenges and necessitate careful consideration of their implications. By embracing AI responsibly and upholding journalistic values of accuracy, fairness, and integrity, news organizations can navigate this transformative landscape while preserving the essence of quality journalism in the digital age.

One of the most important phenomena in artificial intelligence is, as we have already mentioned, robots. If we look at where robots are today, we can see that they are being used in many areas. One example is the use of robot teachers for foreign language learning. The sensitive issue in this example is whether robots can replace teachers. The teachers' approach to this question is that they see robots as teachers' assistants, rather than viewing them negatively (Aslan, 2014).

Artificial intelligence technology has emerged as an important step in the process from the development of computers in the mid-1940s to the present (Flew et al., 2012).

As technology continues to evolve, the methods employed in the creation of content are also undergoing a process of development. One of the most significant developments in the field of content creation is the advent of artificial intelligence. The advent of artificial intelligence has transformed the methods of content creation, rendering them more efficient and effective. Furthermore, the study examines the ways in which AI enhances creativity, efficiency, productivity and innovation in content creation. Artificial intelligence (AI) enhances creativity, efficiency, productivity and innovation in content creation by furnishing content creators with the requisite tools to generate personalised content that will resonate with their target audience. As technology continues to advance, it can be anticipated that AI will assume an even more pivotal role in content creation. The application of artificial intelligence (AI) enables the generation of creative ideas in an efficient manner, thereby facilitating the improvement of high-quality content production. Artificial intelligence is a tool that can perform tasks that require significant manual input, thereby enabling more creative and innovative approaches. Consequently, AI is rapidly transforming various aspects of modern life, including content creation. One of the most significant contributions of AI to content creation is the enhancement of creativity. The application of AI technology enables the generation of unique ideas and perspectives that would be challenging for humans to produce. Artificial intelligence (AI) is capable of generating a vast quantity of ideas based on the analysis of large amounts of data, as well as making predictions that can lead to the development of new and innovative concepts. It is also important to understand the different sub-domains of intelligence in AI algorithms and the existing content. The advent of AI has brought with it a host of new legal and ethical considerations for news organisations in their use of AI in production and distribution, as well as for AI systems in their use of news content to learn. While the utilisation of generative AI tools in newsrooms offers advantages in terms of productivity and innovation, it also entails the potential for inaccuracies, ethical concerns, and the erosion of public trust. Furthermore, it presents an opportunity for the misappropriation of copyrighted material created by journalists. To surmount these challenges, it is imperative that the relevant legislation provide clear definitions for the categories of AI and offer specific explanations for each.

The utilisation of AI in content creation offers a plethora of advantageous opportunities for the effective and expeditious creation and marketing of content. This subtopic examines the numerous advantages of incorporating AI into the content creation process. This paper will examine the advantages of utilising artificial intelligence (AI) content creation tools, which will result in enhanced efficiency, enhanced accuracy, and a reduction in costs. For example, artificial intelligence powered tools can supply content at a faster rate than humans with limited errors. Therefore, artificial intelligence has the ability in optimizing content for numerous platforms like google and social media (Aicontentfy, 2023).

The advent of artificial intelligence is revolutionising the process of content creation, making it faster, more efficient and cost-effective. The application of AI enables content creators to analyse data and create personalised content that resonates with their target audiences. Furthermore, AI assists in the identification and resolution of content deficiencies, thereby enabling content creators to provide a more comprehensive and pertinent experience to their target audiences. The utilisation of AI in content creation has been demonstrated to confer a number of benefits, including enhanced content quality, augmented productivity and reduced costs (Startup AI, 2023). Artificial intelligence can also be employed to analyse user data and generate content that is tailored to specific target audiences. The incorporation of such a smart and modern technology into the content creation process allows content creators and marketers to save time, reduce costs, and create more engaging and effective content that reaches a wider audience (AIContentfy, 2023). It can enhance creativity, efficiency, productivity, and innovation. AI provides content creators with the necessary tools to create personalised content that resonates with their target audience. It enables content creators to produce a greater quantity of content in a shorter period of time, thereby allowing them to direct their attention towards the creation of high-quality content that is capable of engaging their target

audience. While artificial intelligence facilitates the processing of data by new media users, the vast quantity of data generated by new media stimulates the continuous evolution of new media, thereby fostering the further advancement of artificial intelligence within this context. The content generated by means of artificial intelligence frequently engenders a sense of sameness in the recipients. The application of artificial intelligence algorithms in new media has the potential to address the challenges associated with the traditional information dissemination paradigm in the Internet age. By enhancing the efficiency of information production, distribution and management, these algorithms have the capacity to significantly improve the overall effectiveness of new media operations (Lu & Nam, 2021).

Artificial intelligence is capable of detecting a significant number of experimental patterns and similarities, particularly in scientific and technological fields. This allows creators to draw inspiration from their work and develop new pieces of engaging content. Furthermore, AI can influence the efficacy of content creation. The application of AI in the content creation process enables creators to streamline tasks, effectively reducing the time and effort required to produce quality content. The automation capabilities of AI can handle routine tasks such as copy editing and proofreading, thus enabling their human counterparts to focus more on the creative aspects of content creation. Finally, AI significantly increases productivity by augmenting the human creative process. The automation of repetitive and mundane tasks allows for the reallocation of staff time to higher-value, more strategic activities. The speed and accuracy of AI technology result in the production of quality content and an increase in productivity. Furthermore, AI-based tools can enhance productivity over time by guaranteeing that deadlines are met, and engagement opportunities are not missed. Despite the advantages, it is important to consider ethical and quality standards when creating content with AI. It is important to ensure that human oversight and revision are employed in order to enhance the accuracy and quality of AI-generated content. Furthermore, considerations pertaining to the privacy of user data and copyrights must be addressed.

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