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Use of AI Tools in Journalism: A Descriptive Study of Artificial Intelligence, Tools Used in the Print and Online Press Industry

Abstract

Developments in artificial intelligence technology have imposed fundamental transformations in the field of journalism, with a direct impact that has gone beyond mere changes to radical transformations in media systems and their economies. Press websites have introduced a new and distinctive media landscape that aligns with the use of artificial intelligence tools in diverse and varied forms of journalism to enhance information retrieval, automate content production, analyse public opinion, and integrate other technologies, making AI an integral part of the journalistic process. In this context, this research aims to explore the use of artificial intelligence tools in journalism, examine their impact on the journalistic process, and identify the challenges and opportunities that this technology presents for journalists and journalistic institutions in both print and online journalism. Through this study, we seek to provide a comprehensive perspective on the role of artificial intelligence tools used in the Algerian print and digital journalism sector.

Keywords: *Algerian journalism, artificial intelligence in journalism, AI tools in journalism, online journalism, print journalism*

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Jurnalistikada süni intellekt alətlərinin istifadəsi: Süni intellektin təsviri tədqiqi, çap və onlayn mətbuat sənayesində istifadə olunan alətlər

Xülasə

Süni intellekt texnologiyasındakı inkişaflar jurnalistika sahəsində fundamental transformasiyalar tətbiq etdi və birbaşa təsir media sistemlərində və onların iqtisadiyyatlarında köklü dəyişikliklərdən kənara çıxdı. Mətbuat saytları informasiya axtarışını təkmilləşdirmək, məzmun istehsalını avtomatlaşdırmaq, ictimai rəyi təhlil etmək və digər texnologiyalara inteqrasiya etmək üçün jurnalistikanın müxtəlif və müxtəlif formalarında süni intellekt alətlərinin istifadəsi ilə uyğunlaşan yeni və fərqli media mənzərəsi təqdim edib, bununla da süni intellekt jurnalist prosesinin ayrılmaz hissəsinə çevrilib. Bu kontekstdə bu tədqiqat jurnalistikada süni intellekt alətlərinin istifadəsini araşdırmaq, onların jurnalist prosesinə təsirini araşdırmaq və bu texnologiyanın həm çap, həm də onlayn jurnalistikada jurnalistlər və journalist institutları üçün təqdim etdiyi çətinlikləri və imkanları

müəyyən etmək məqsədi daşıyır. Bu araşdırma vasitəsilə biz Əlcəzair çap və rəqəmsal jurnalistika sektorunda istifadə olunan süni intellekt vasitələrinin rolu haqqında hərtərəfli perspektiv təqdim etməyə çalışırıq.

Açar sözlər: *Əlcəzair jurnalistikası, jurnalistikada süni intellekt, jurnalistikada süni intellekt alətləri, onlayn jurnalistika, çap jurnalistikası*

Introduction

The emergence of artificial intelligence technologies in the field of journalism reflects a broad trend toward digital transformation in the field, including the reconfiguration of many concepts related to the collection, formulation, dissemination of news and information to audiences through various media and media channels. Artificial intelligence has rapidly evolved from being merely an experimental innovation to becoming an essential component in media, communication, and journalism across different formats. This advancement has facilitated the widespread adoption of digital tools by journalists, especially with the strong integration of the internet into journalistic work over the past two decades. Additionally, the rapid progress of artificial intelligence and the expansion of its systems and tools within the journalistic environment have enabled the automation of increasingly complex tasks within a short period.

Research

This technological transformation has multiple dimensions within the field, and Algerian journalism across its various forms is not isolated from these global changes. This is particularly evident in both print and electronic journalism, which leads to the following key research question:

- What AI tools can Algerian journalists use in print and online journalism?

From this fundamental question, we derive the following subquestions:

- What is artificial intelligence, and what tools are used in print and online journalism?
- What opportunities does AI offer for the Algerian print and online journalism sector?
- What challenges and risks from integrating artificial intelligence technologies into print and online journalism?

Significance of the Research:

The importance of modern technologies in journalism has increased significantly, with each new invention or discovery benefiting media work—from remote communication to space exploration, satellite technology, and internet development.

Artificial intelligence tools represent one of the most significant technological advancements, offering numerous benefits and qualitative improvements across various fields and disciplines to facilitate people's lives. Journalism is among the fields that have increasingly integrated AI technologies, as their application in journalistic work has become essential. AI presents a valuable opportunity to enhance work quality because of the services it offers to journalists in particular and press institutions in general, especially in both print and electronic journalism. Therefore, monitoring the adoption and progress of AI in Algerian journalism is crucial.

Research objectives:

This study aims to explore the use of artificial intelligence in journalistic practice among a specific group of Algerian journalists who are active in both print and electronic journalism, with a focus on the following:

- Identifying artificial intelligence and its tools in the context of print and electronic journalism for Algerian journalists.
- Assessing the extent to which Algerian journalists use artificial intelligence tools in print and electronic journalism.
- Examining the motivations behind the use of artificial intelligence tools by Algerian journalists in print and electronic journalism.
- Determining the most commonly used artificial intelligence tools in print and electronic journalism.

- Identifying the obstacles and challenges faced by Algerian journalists in integrating artificial intelligence tools into their work.

1. Definition of Artificial Intelligence Tools:

The conceptual definition of artificial intelligence tools derives from three words: tool, intelligence, and artificial.

1.1 Definition of Tools:

The language definition of "tool," according to the *intermediate dictionary*, is a small machine (Mustafa et al., 1999), whereas the *contemporary Arabic dictionary* defines it as a machine or an instrument used to accomplish a specific purpose. It is also considered a means to achieve an objective, a word used in conjunction with others to convey meaning. The plural form is "tools," as in "artificial intelligence tools," which refer to instruments or systems that function in alignment with a specific objective (Al-Qazwini Al-Razi, 1979).

When the term "tool" is defined in scientific fields related to applied and practical aspects, it is associated with tangible objects rather than abstract concepts. There is a strong connection between the linguistic and terminological meanings, as "tool" is fundamentally linked to machinery (Balhaf, 2010). The concept of a tool continuously evolves to encompass new technological advancements, machines, and equipment that undergo continuous development. A machine is defined as a device capable of autonomous or manual movement, and once it is used, it becomes a tool (Khalif, 2019).

1.2 Intelligence

The language definition of intelligence is the ability to analyse, synthesize, differentiate, choose, and adapt to different situations. An intelligent person is someone who quickly understands and processes information (Mukhtar et al., 2008).

The terminological definition is defined as an individual's cognitive ability to learn from experience, retain essential information, and navigate the demands of daily life (Musa & Bilal, 2019).

1.3 Artificial

The term "artificial" refers to something that has been synthetically produced rather than occurring naturally. It is commonly associated with manufactured or human-made objects (Mukhtar et al., 2008).

The first definition of artificial intelligence dates back to John McCarthy, one of the pioneers of AI, who first introduced the term in 1955. He defined artificial intelligence as ‘’the development of machines that behave as if they were intelligent’’ (Ertel, 2017, p. 1).

In everyday language, "artificial" means man-made, often carrying a negative connotation as something inferior to the real or natural counterpart. However, artificial objects can sometimes surpass natural objects in terms of efficiency and performance (Musa & Bilal, 2019).

The concept of artificial intelligence technologies emerged alongside the term "artificial intelligence," first introduced at the Dartmouth Conference in the United States in 1956. By Marvin Minsky, John McCarthy, Claude Shannon, and Nathan Rochester, the conference participants predicted that machines would eventually develop advanced intelligent behaviour.

Contemporary dictionaries define artificial intelligence technology as the ability of machines or devices to perform activities that require intelligence, such as logical reasoning and self-repair (Al-Amin, 2021). According to programmers, AI is the science concerned with creating machines and designing software that can perform tasks requiring intelligence when executed by humans. This concept refers to programmed devices that simulate human cognitive abilities to complete tasks, deduce information, and identify patterns beyond their initial programming (Al-Zaidi, 2023).

Artificial intelligence focuses primarily on developing systems that learn and improve their performance on the basis of the data they access and collect.

One of the most notable definitions comes from Marvin Lee Minsky, who described AI as "the construction of computer programs that engage in tasks typically performed by humans, as these tasks require advanced mental processes such as cognitive learning, memory organization, and critical thinking." AI applications and programs are designed by studying how the human mind thinks, learns, and makes decisions. The findings from these studies serve as the foundation for developing intelligent software and systems (Musa & Bilal, 2019).

AI tools and techniques are evolving at an extraordinary pace, to the extent that, in some cases, they may appear almost magical. This rapid advancement has empowered users significantly, raising concerns about the potential difficulty of controlling AI in the future.

2. Characteristics of artificial intelligence technologies:

Artificial intelligence has several features and characteristics, many of which are particularly important in the fields of media and communication. The most significant of these include the following:

2.1 Symbolic representation:

Unlike traditional computers, which operate solely with numerical symbols, artificial intelligence programs do not rely exclusively on digital symbols. At the most basic level, computers process binary values (0 s and 1 s) and cannot interpret subtle variations in meaning. The reliance on this binary system has contributed to the widespread belief that computers can only understand clear-cut, "yes" or "no" (Bonnet, 1993).

2.2 Inference:

Inference refers to the ability to derive conclusions or generate new ideas on the basis of existing documents and guiding data (Abu Ali, 2024). Artificial intelligence can process symbolic information to infer new symbolic information. This type of inferential or inductive reasoning is often referred to as "attribute transfer" and plays a critical role in the field of artificial intelligence (Bonnet, 1993).

2.3 Learning ability:

The capacity to learn is a fundamental characteristic of intelligent behaviour. Just as humans learn through observation and learn from past mistakes, artificial intelligence systems must rely on machine learning strategies. AI systems can continuously improve their performance over time without requiring direct human intervention.

2.3 Communication:

AI entities can interact with humans, and the more seamless this communication is, the greater the system's perceived intelligence (Abu Ali, 2024).

2.4 Problem solving and adaptability:

Artificial intelligence programs do not always have a predefined algorithmic solution, meaning that there is no fixed sequence of steps guaranteed to solve a given problem. When AI systems encounter such problems, they rely on heuristic methods, selecting what appears to be the most suitable approach while remaining flexible enough to switch strategies if the initial method proves ineffective.

2.5 Unconfirmed or incomplete data:

AI programs must be able to generate solutions even when faced with uncertain or incomplete data. However, this does not mean that AI should produce random or unreliable results. Instead, it must perform efficiently, providing acceptable and logically sound solutions; otherwise, its effectiveness is compromised.

3. Motives for Using Artificial Intelligence in the Field of Journalism:

Artificial intelligence enhances various industries by driving growth, increasing productivity, fostering creativity, and generating new jobs that require specialized skills. AI and machine learning are key components of digitalization, which has accelerated the Fourth Industrial Revolution. This revolution is driven by emerging technological innovations that, when applied effectively, increase productivity and promote widespread economic prosperity (El Hadi, 2021).

In journalism, the integration of AI technologies helps improve the quality of news production when the industry faces challenges related to economic sustainability, public trust, and misinformation. AI tools not only assist journalists in their work but also enable audiences to navigate a news landscape filled with information and disinformation, ensuring that they engage with relevant, reliable, and meaningful content.

Several key motives drive the adoption of artificial intelligence in journalism:

3.1 Advancements in Computing Technology:

Computers have evolved significantly within modern technological frameworks, becoming smaller, faster, and more efficient. The emergence of artificial intelligence applications and programs has further enhanced their capabilities, making them indispensable tools in journalism.

3.2 Improved AI technologies and cost effectiveness

Recent advancements in artificial intelligence have resulted in increased accuracy, improved functionality, and reduced costs. These factors have encouraged the integration of AI in various forms of journalism, including text, voice, images, publication methods, news distribution, and other smart applications.

3.3 Digital Transformation of Journalism

The shift toward digitalization has transformed the way information is processed in journalism and daily life. This shift has encouraged the adoption of AI tools, particularly because digitalization enables a single tool (such as a computer) to perform multiple tasks efficiently.

4. Applications of artificial intelligence in journalism:

The applications of artificial intelligence in journalism are no longer limited to supporting the digital environment in which journalism operates. AI has now penetrated the core of the industry, directly influencing content creation. With its ability to automate tasks, artificial intelligence not only replaces humans in routine work but also assists in writing news articles, leaving editors with the flexibility to modify and approve content before publication—or even allowing for fully automated editing and publishing (Al-Amin, 2021).

AI applications are increasingly handling the simpler tasks that journalists previously performed. This is particularly significant because journalists must continuously monitor events in real time. Given that journalism requires extensive research and fact checks, AI plays a paramount role in relieving journalists from repetitive tasks, enabling them to focus on more critical aspects of reporting.

Artificial intelligence has demonstrated remarkable potential in solving complex problems and completing tasks with greater speed and efficiency. This has led to significant advancements in journalism, including the development of AI-based applications that have introduced new practices in media, communication, and news production. Some of the key applications include the following (Ali, 2021, pp. 146-147):

- Analysing media content on the internet
- Monitoring public opinion trends, with the ability to segment data on the basis of geography, age, gender, and ideological orientation
- Using AI tools capable of processing and generating content in multiple languages

AI has immense potential to enhance journalism, and as technology continues to advance, artificial intelligence is expected to become an integral part of news gathering, writing, and publishing. Furthermore, new AI applications are being continuously developed, further transforming the industry.

5. Models of artificial intelligence applications in the fields of written journalism and electronic journalism:

With the rise of artificial intelligence technologies across various fields, numerous support applications have emerged to harness AI's potential in journalism, increasing the efficiency of journalists' work. These tools open new possibilities for improving journalistic practices. Among them, platforms such as the Artificial Intelligence Tools Store (OpenAI GPT Store) serve as indicators of AI tools' growing integration into journalism, offering a range of applications designed for writing, translation, speech-to-text conversion, chat-based assistance, and data analysis.

Below are several key AI applications that are transforming journalism:

5.1 AI-Powered Writing Tools

These AI tools generate textual content such as articles and news reports and use scientific and practical frameworks to ensure accuracy and coherence. Some prominent applications include the following:

- **Katteb**: This platform enables the creation of articles, news, product descriptions, and social media content via AI. It ensures content credibility by relying on reliable sources, incorporating geographically targeted content, and leveraging real-time data. It also features proofreading tools and plagiarism detection and ensures exclusive content generation.
- **Write for Me**: This application specializes in generating high-quality, engaging content with precise word count control. It has been downloaded more than 1 million times (ChatGPT, 2024) from the OpenAI GPT Store and was developed by Puzzle. Today (Diversebranch, 2024).

5.2 AI-Powered Translation Tools

These AI-driven translation tools assist journalists in translating texts accurately while preserving contextual meaning. Key applications include the following:

- **Google Translate:** A widely used, free translation service that supports over 100 languages. It offers text, document, and image translation, as well as website translation, serving more than 200 million users daily.
- **Translate GPT:** A context-aware translation tool supporting multiple languages. It is one of the most popular AI translation applications on the OpenAI GPT Store, with over 50,000 downloads. It was developed by HIX.AI.

5.3 Speech-to-Text Applications:

These applications enable journalists to convert audio recordings into text, facilitating the transcription of interviews, press conferences, and other audio materials. Some widely used tools include the following:

- **Google Cloud Speech-To-Text API:** This AI-powered application converts audio into text and currently supports 13 languages. Users can access up to 60 minutes of free transcription per month, Developed by Google.
- **Speech notes:** A dictation tool that efficiently transcribes audio and video recordings into text. It allows journalists to dictate notes instead of manually typing, saving time and effort. It has been downloaded more than **5 million times** from the Google Play Store and has been in service since 2015.

5.4 AI Chat Applications

AI chatbots enable real-time interaction, providing journalists with quick access to information, brainstorming assistance, and user engagement. Key applications include the following:

- **ChatGPT**: Launched in November 2022, ChatGPT advanced rapidly, reaching version 4.0. It offers conversational AI support for research, content generation, and idea development (ChatGPT, 2024).
- **Microsoft Copilot**: Announced on March 16, 2023, Copilot is a new AI-powered assistant designed to increase productivity and assist with writing and research tasks.

5.5 AI Data Analysis Tools:

These tools analyse large datasets, enabling journalists to extract insights efficiently, even from complex or diverse sources. Notable tools include the following:

- **Youlyous:** An AI-driven data analysis tool that simplifies complex data interpretation. Its slogan, "Chat with your files and get expert-level insights in seconds," highlights its ability to process data quickly. The platform is used by 500,000+ users.

The rapid development of AI-powered journalism tools has led to initiatives aimed at supporting the press sector, particularly written and digital journalism. **Google**, for example, has stated:

"In partnership with news publishers—especially small publishers—we are in the early stages of exploring AI-powered tools to assist journalists in their work." (Google invades newsrooms, 2024).

Additionally, AI tool providers such as HIX. AI offers specialized solutions for journalism, introducing a modern and innovative set of tools that enhance journalistic workflows. These AI advancements are reshaping journalism, helping journalists improve their work, accelerating media production, and exploring new horizons in digital storytelling.

The table below displays the most significant applications that would help journalists in their daily professional practices:

Tool	Function	Link
Hix Email Clerk Enabled by HIX AI Writer	AI-powered email generator and writer that helps journalists compose emails, respond faster, and summarize emails efficiently.	Hix Email Clerk
Essay Expander Enabled by HIX AI Writer	Expands and enhances articles using AI, ensuring professional and well-structured content.	**Essay Expander**
Essay Checker Enabled by HIX AI Writer	Proofreading tool that helps journalists produce error-free content.	**Essay Checker**
Chat with Document (ChatPDF) Enabled by HIX AI Writer	AI-powered tool that enables conversations with PDF content, instant text extraction, and smart summarization.	**Chat with Document**
Paraphrasing Tool Enabled by HIX AI Writer	Smart paraphrasing tool that restructures sentences while preserving meaning and grammatical accuracy.	**Paraphrasing Tool**
News Article Writer Generator Enabled by ArticleGPT	Generates well-structured, unbiased news articles following the inverted pyramid style.	**News Article Writer Generator**

This table highlights a selection of AI tools available on Hix.ai, demonstrating their growing role in journalistic work, content creation, and media production (Hix AI, 2024).

6. The Challenges of Using Artificial Intelligence Technologies in Journalism:

The introduction of innovative technologies, such as artificial intelligence, has raised significant concerns, particularly in fields where accuracy and credibility are paramount, including journalism. In recent years, artificial intelligence has undergone substantial advancements, with expectations of further progress in the coming decades. In both the short and long term, the development of artificial intelligence must align with principles of safety and utility. However, its integration into journalism presents several challenges, particularly with respect to privacy, bias, inequality, security, and ethical considerations. As artificial intelligence continues to be implemented across various journalistic functions, critical discussions concerning the extent to which regulatory frameworks should be established to oversee its growth and impact have emerged (Suleiman, 202).

One of the most pressing challenges associated with the use of artificial intelligence in journalism is the proliferation of false information and its detrimental effects on the integrity of digital content. The increasing sophistication of AI-generated content, including deepfake materials and fabricated reviews, has facilitated the dissemination of misleading narratives, thereby undermining the credibility of verified information. Although detection mechanisms exist, their effectiveness remains limited because of the continuous advancements in generative artificial intelligence and the constraints imposed by available metadata (Bakr, 2023).

Artificial intelligence also contributes to reducing bias in journalistic reporting by assisting in data collection and content generation. AI tools facilitate the rapid processing of large datasets, enabling the production of more accurate and timely news articles. This technological capability allows journalists to allocate more time to investigative and analytical tasks than to repetitive content production.

Despite these challenges, proponents of artificial intelligence argue that its integration into journalism can enhance creativity and efficiency. As media professionals and institutions refine their application of AI-driven technologies, they may be able to focus on more complex journalistic endeavors, thereby fostering a more dynamic and innovative media landscape. This transformation

aligns with the evolution of new media platforms, where artificial intelligence contributes not only to content production but also to audience engagement and analytical insights (Al-Homoud et al., 2023).

Furthermore, the continuous development of artificial intelligence necessitates ongoing training and adaptation within journalistic practices. Journalists and editorial teams are required to remain informed about emerging AI tools and techniques to ensure their effective and ethical implementation. Given the rapid pace of innovation in this domain, the ability to integrate artificial intelligence responsibly will be a defining factor in the future of journalism.

Conclusion

Rapid advancements in artificial intelligence have necessitated its integration into various aspects of journalism, from supporting auxiliary professions to enhancing daily journalistic practices. The findings highlight the following:

- **Editorial processes** have become a primary area where artificial intelligence is extensively applied, particularly in supporting journalistic writing and content creation.
- **AI-powered translation tools** significantly facilitate multilingual journalism, enabling seamless communication across dozens of languages with minimal effort.
- **Data analysis capabilities** have been greatly enhanced through artificial intelligence, allowing journalists to process and interpret large datasets much faster than before, thereby streamlining journalistic workflows.
- **Ongoing training and adaptation** are essential for journalists and editorial teams to keep pace with AI-driven developments and ensure their effective use.
- **Bias reduction** is one of AI's notable contributions, as it assists in data interpretation and the publication of more objective reports and news articles.
- **The time efficiency** of journalistic writing and media content production has improved substantially, as AI tools increase the speed and accuracy of data processing.
- **Critical evaluation skills** are imperative for journalists when dealing with AI-generated content, as the risks of misinformation and fabricated content pose serious threats to journalistic credibility.

Artificial intelligence presents significant opportunities for both traditional and digital journalism by enhancing efficiency, accuracy, and content quality. However, the challenges it introduces necessitate human oversight to ensure journalistic integrity, particularly in verifying information and mitigating the spread of misinformation. While AI tools have become an integral part of news collection, editing, and publishing, their responsible use is crucial to maintaining high-quality journalism and fostering public trust. The balance between leveraging AI's capabilities and adhering to ethical journalism standards will shape the future of media in an era increasingly influenced by artificial intelligence.

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