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Smart Generative Media: Analyzing the Impact of Artificial Intelligence Tools (Such as ChatGPT, Midjourney) on Journalistic and Creative Content Production

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Abstract

This study seeks to analyze the impact of generative artificial intelligence tools, specifically ChatGPT and Midjourney, on the ecosystem of journalistic and creative content production in the Arab and international media environment. The study adopted a Mixed Methods approach combining quantitative analysis through an electronic questionnaire distributed to a sample of (412) journalists, editors, and digital content creators across six Arab countries, and qualitative analysis through semi-structured in-depth interviews with (28) experts in the fields of digital media, artificial intelligence, and media ethics. Theoretically, the study drew upon Marshall McLuhan's Technological Determinism theory, Everett Rogers' Diffusion of Innovations theory, and the Gatekeeping Theory in its contemporary digital formulation.

The results revealed that (78.4%) of respondents use at least one generative AI tool across various stages of content production, and that (63.1%) reported a noticeable improvement in production speed, while (54.6%) expressed substantive concerns regarding accuracy, credibility, and originality. The study uncovered a statistically significant correlation between the journalist's level of digital competence and the degree of generative AI tool adoption ($r = 0.71$, $p < 0.001$). The findings also highlighted five principal patterns of tool utilization, ranging from advanced integrative use to complete rejection. The study concluded that comprehensive regulatory and ethical frameworks governing the use of generative AI in media practice must be developed, emphasizing that these tools are reshaping the journalist's role from "content producer" to "coordinator, verifier, and auditor of automatically generated content."

Keywords: Generative Artificial Intelligence ChatGPT Midjourney Digital Journalism Creative Content Production Media Ethics Digital Gatekeeper.

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Introduction

The international media environment witnessed profound structural transformations during the second decade of the twenty-first century that reshaped concepts of media production, distribution, and consumption. However, the emergence of the new generation of Generative Artificial Intelligence tools in late 2022 and early 2023 produced what can be described as an "epistemological earthquake" in the media and digital content industry. OpenAI launched ChatGPT in November 2022, achieving the fastest growth rate in the history of digital applications by surpassing the one hundred million active users threshold within just two months of its launch (Hu, 2023). Concurrently, Midjourney, based on Diffusion Models, enabled the generation of high-quality images from simple textual inputs, sparking extensive debates about the future of visual creativity and journalistic design (Borji, 2023).

The intersection of generative artificial intelligence and media practice does not merely represent a marginal technical addition; rather, it constitutes a structural Paradigm Shift in the nature of the media process itself. These tools are capable of producing news texts, summarizing reports, generating compelling headlines, creating accompanying visual content, and even reformulating content in multiple languages—all of which raises fundamental questions about the identity of the media producer, the boundaries of originality and creativity, and the standards of credibility and verification in the age of automatically generated content (Pavlik, 2023; Túñez-López et al., 2024).

In the Arab context, these transformations acquire additional dimensions linked to the linguistic and cultural specificities of Arabic content, as Large Language Models (LLMs) face structural challenges in processing the Arabic language with sufficient accuracy owing to its morphological and syntactic complexities, in addition to the limited availability of high-quality Arabic training data compared to English (Abdelali et al., 2024). Furthermore, these tools raise profound issues related to Cultural and Informational Bias in automatically generated content and its impact on narrative diversity and pluralism in Arab media discourse.

Research Problem

Despite the rapidly increasing adoption of generative AI tools by media organizations, the academic literature still suffers from a clear knowledge gap in understanding the precise mechanisms through which these tools affect the journalistic and creative content production chain, particularly in the Arab context. Most existing studies either focused on the purely technical aspects of these tools without linking them to actual media practice (Cao et al., 2023), or were confined to theoretical explorations that were not empirically tested (Diakopoulos, 2023). Moreover, studies that specifically addressed the Arab media environment remain limited in number and restricted in geographic and methodological scope.

The research problem lies in the absence of an integrated analytical framework that connects the technical, professional, and ethical dimensions of employing gen-

erative AI tools in media production; the insufficiency of empirical evidence regarding actual usage patterns of these tools by Arab media practitioners; and the limited scientific understanding of the reciprocal effects between these tools and editorial decision-making processes and media gatekeeping mechanisms.

Study Objectives

This study seeks to achieve the following objectives: First, to identify and classify patterns of generative AI tool employment across the various stages of journalistic and creative production. Second, to analyze the impact of these tools on media content quality and production efficiency from the perspective of media practitioners. Third, to explore the ethical and professional challenges associated with integrating generative AI tools into media practice. Fourth, to examine the relationship between journalists' demographic and professional variables and their degree of adoption and usage patterns of these tools. Fifth, to develop an integrative conceptual framework that explains the dynamics of interaction between generative AI and contemporary media practice.

Research Questions

This study seeks to answer the following research questions:

Main Research Question (RQ): How do generative AI tools (ChatGPT, Midjourney) affect the ecosystem of journalistic and creative content production?

Sub-questions:

- **RQ1:** What are the usage patterns of journalists and digital content creators with generative AI tools across the various stages of media production?
- **RQ2:** What is the impact of generative AI tools on media content quality indicators (accuracy, originality, depth, diversity)?
- **RQ3:** What are the most prominent ethical and professional challenges in employing these tools from the perspective of media practitioners and experts?
- **RQ4:** Are there statistically significant differences in the patterns of generative AI tool adoption attributable to demographic and professional variables (age, experience, institution type, digital competence)?
- **RQ5:** How do generative AI tools reshape the role of the media gatekeeper and editorial decision-making mechanisms?

Research Hypotheses

- **H1:** There is a positive and statistically significant correlation between journalists' level of digital competence and their degree of generative AI tool adoption.
- **H2:** There are statistically significant differences in the degree of generative AI tool adoption attributable to the age group variable.

- **H3:** There is a negative and statistically significant correlation between years of professional experience and the degree of reliance on generative AI tools in media production.
- **H4:** There is a statistically significant effect of the type of media institution (digital-native / digitally transformed legacy) on patterns of generative AI tool employment.

Significance of the Study

This study derives its significance from two complementary dimensions. On the theoretical level, the study contributes to bridging the knowledge gap in Arab and international literature concerning the employment of generative AI in media practice, by presenting an integrative conceptual framework that combines the theories of technological determinism, diffusion of innovations, and digital gatekeeping—thereby enriching the academic dialogue on the future of the media industry in the age of artificial intelligence. The study also adds an important empirical dimension through fieldwork data collected from multiple Arab media environments.

On the applied level, the findings of this study provide a scientific foundation for media policymakers and those responsible for developing training curricula in media organizations and schools of journalism. The study also offers practical recommendations for media organizations regarding best practices in integrating generative AI tools while preserving standards of quality, credibility, and professional ethics.

Scope and Limitations

This study is delimited by the following boundaries: The topical boundaries focus on two principal tools—ChatGPT (as a model for text generation tools) and Midjourney (as a model for image generation tools)—with reference to other tools as appropriate. The human boundaries encompass journalists, editors, and digital content creators in six Arab countries: Egypt, the Kingdom of Saudi Arabia, the United Arab Emirates, Jordan, Lebanon, and Morocco. The temporal boundaries extend from March 2024 to January 2025.

Theoretical Framework and Previous Literature

Theoretical Framework

This study draws upon three principal theories that collectively form an integrative conceptual framework for understanding the relationship between generative AI tools and media practice.

Technological Determinism Theory

Marshall McLuhan (1964), in his foundational work *Understanding Media: The Extensions of Man*, advanced a seminal vision positing that technology is not merely a neutral instrument employed by humans, but rather a transformative force that

reshapes patterns of thinking, communication, and social organization. His famous dictum "The Medium is the Message" encapsulates the essence of this conception, affirming that the form of the technical medium influences the nature of the content itself and the patterns of its reception and interpretation.

In the context of generative AI, this theory acquires new dimensions. Tools such as ChatGPT do not merely alter the method by which content is produced; they redefine the very essence of "content" and the criteria for its evaluation. When a news text becomes the product of interaction between a human input and an algorithmic output, the nature of the relationship between producer, text, and recipient undergoes a radical transformation (Broussard, 2023). Nevertheless, the present study adopts a critically modified version of this theory that transcends hard determinism toward a more interactive understanding that acknowledges the capacity of human agents to adapt positively to technological transformations and redirect them—what is known as Soft Technological Determinism, as articulated by Langdon Winner (1986).

Diffusion of Innovations Theory

Everett Rogers (1962/2003) presented a comprehensive analytical framework for understanding how new ideas and technologies spread within social systems over time. Rogers classifies adopters of innovations into five categories according to the speed of their adoption: Innovators (2.5%), Early Adopters (13.5%), Early Majority (34%), Late Majority (34%), and Laggards (16%).

This theory provides a valuable analytical tool for understanding the disparities in levels of generative AI tool adoption among journalists and media organizations, as the speed of adoption is influenced by five perceived characteristics of the innovation: Relative Advantage, Compatibility, Complexity, Trialability, and Observability. In the Arab media context, these characteristics are influenced by additional contextual factors including digital infrastructure, institutional policies, prevailing professional culture, and the level of technical qualification of journalistic cadres (Weaver et al., 2023).

Digital Gatekeeping Theory

Gatekeeping theory originated in the work of Kurt Lewin (1947) and was developed in a media context by David Manning White (1950), then evolved through the contributions of Pamela Shoemaker and Tim Vos (2009) to encompass multiple analytical levels extending beyond the individual to the organization and the social system. In the digital age, a number of scholars have reformulated this theory to accommodate the new dynamics introduced by digital platforms and algorithms in the media gatekeeping process (Bro & Wallberg, 2014; Wallace, 2018).

With the emergence of generative AI tools, this theory raises unprecedented issues. These tools function as an "Algorithmic Gatekeeper" that makes implicit de-

cisions about what is included and what is excluded from automatically generated content, based on training data and programmed parameters. This creates a new layer of gatekeeping that did not exist in traditional models, necessitating a fundamental re-theorization of the gatekeeping concept in the age of generative AI (Napoli, 2023; Diakopoulos, 2023).

This study proposes an integrative model termed "Hybrid Gatekeeping," wherein the media gatekeeping process is shaped by the interaction of three agents: the human journalist with professional expertise and editorial judgment, the generative algorithm with its computational capabilities and latent biases, and institutional policies that regulate the relationship between the two preceding agents.

Literature Review

Generative Artificial Intelligence: Concept and Evolution

The term Generative AI refers to a category of artificial intelligence systems capable of producing new content—text, images, audio, video—based on patterns learned from massive training datasets (Goodfellow et al., 2014). Text-based tools such as ChatGPT are built upon the Transformer Architecture, introduced in the seminal research paper "Attention Is All You Need" (Vaswani et al., 2017), which enabled the construction of large language models capable of understanding and generating texts with unprecedented levels of coherence and fluency.

On the image generation front, Diffusion Models proposed by Ho et al. (2020) and Rombach et al. (2022) represented a qualitative leap in machines' ability to produce realistic and artistic images of high quality. Midjourney stands as one of the most prominent commercial applications of these models, allowing users to generate images in diverse styles through textual descriptions (Prompts), and has sparked extensive debate in the creative community regarding the boundaries of intellectual property rights and the concept of artistic originality (Epstein et al., 2023).

Artificial Intelligence in Newsrooms: From Automation to Generation

The employment of AI in journalistic production was not an entirely novel phenomenon, as generative AI tools were preceded by a wave of "Automated Journalism" or "Robot Journalism" applications that relied on Natural Language Generation (NLG) techniques to produce formulaic reports in areas such as financial, sports, and weather news. An early study by Graefe (2016) documented that systems such as Wordsmith and Quill were able to produce thousands of news articles of acceptable quality in record time, although they lacked analytical depth and the human dimension.

With the emergence of ChatGPT and its counterparts, the discourse shifted from "partial automation" to "comprehensive generation," as these tools became capable of producing multiple types of journalistic content including analytical articles, in-depth reports, and creative content. Nishal and Textile (2024) document-

ed that an increasing number of major newsrooms, including the Associated Press, Reuters, and Bloomberg, had begun integrating generative AI tools into editorial workflows, albeit to varying degrees and through different approaches. While some organizations adopted an "Assist, Not Replace" policy, others assumed more cautious or even resistant positions.

Latar (2023) conducted a qualitative study on a sample of journalists in the United Kingdom and concluded that most participants viewed ChatGPT as "an intelligent assistant" that accelerates the brainstorming, initial research, and draft writing stages, while simultaneously emphasizing the necessity of permanent human oversight. In the same vein, Wölker and Powell (2024) found that AI-generated content may rival human content in linguistic fluency and structural organization, but remains lower in performance on dimensions such as originality, contextual depth, and cultural sensitivity.

Impact on Content Quality and Credibility Standards

The impact of generative AI tools on media content quality constitutes one of the most debated topics in contemporary literature. On one hand, numerous studies have documented these tools' capacity to improve production efficiency, reduce linguistic and spelling errors, and diversify presentation styles (Simon, 2024). On the other hand, other studies have identified serious risks related to the "Hallucination" phenomenon characteristic of large language models, whereby linguistically convincing but factually incorrect information is produced (Ji et al., 2023; Huang et al., 2023).

Kreps et al. (2022) conducted a comparative experiment between news articles written by human journalists and others generated by AI, concluding that readers were frequently unable to distinguish between them—raising profound issues of transparency and disclosure. Zhou et al. (2023) further documented that AI-generated content tends to reinforce biases present in training data, potentially leading to an "Algorithmic Echo Chamber" that diminishes the diversity of perspectives represented in media discourse.

Ethical and Regulatory Dimensions

The proliferation of generative AI in media has opened wide doors for discussion on ethical and regulatory dimensions. The principal ethical issues center on several interconnected axes. The first axis concerns Attribution and Intellectual Property, where the question arises as to who owns the rights to generated content: the user who formulated the Prompt, the company that developed the model, or the owners of the data on which the model was trained (Samuelson, 2023). The second axis relates to Transparency and Disclosure, as calls increase for obligating media organizations to disclose the use of AI tools in content production (Montal & Reich, 2017). The third axis pertains to Bias and Fairness, where multiple studies have documented the existence of systematic biases in the outputs of large language

models that reflect and amplify biases present in training data (Bender et al., 2021; Weidinger et al., 2022).

On the regulatory front, several international media organizations have begun developing internal policies and guidelines to regulate the use of generative AI tools. The Associated Press issued detailed editorial guidelines in August 2023 that permit the use of ChatGPT as an assistive tool while emphasizing the necessity of human verification of all outputs. The European Union also enacted the EU AI Act in 2024, which includes explicit provisions related to the transparency of automatically generated content (European Commission, 2024). At the Arab level, regulatory frameworks are still in the formative stage, with individual initiatives from some countries such as the United Arab Emirates, which launched a national AI strategy that includes a media dimension (UAE AI Strategy, 2023).

Studies in the Arab Context

A review of the literature reveals a notable scarcity in studies addressing the impact of generative AI tools on media practice in the Arab context. Al-Shamri and Al-Otaibi (2024) surveyed the attitudes of Saudi journalists toward using ChatGPT in journalistic production and concluded that attitudes were cautiously positive, with concerns related to accuracy and cultural specificity. Hassan and Mohammed (2024) examined the reality of AI employment in Egyptian newsrooms and revealed a clear gap between awareness of these tools' capabilities and their actual utilization. In the Maghreb context, Benabdallah (2024) explored Moroccan journalists' perceptions of generative AI and found that linguistic barriers constitute a primary challenge in employing these tools for Arabic content.

The present study distinguishes itself from previous studies in several respects: it adopts a cross-national perspective encompassing six Arab countries; it combines quantitative and qualitative dimensions in a mixed-methods design; it focuses on two representative tools (ChatGPT for text and Midjourney for images), thereby enabling a comparative analysis between the domains of textual and visual generation; and it draws upon an integrative theoretical framework that employs three theories in a complementary rather than aggregative manner.

Methodology

Research Design

This study adopted a Sequential Explanatory Mixed Methods Design as described by Creswell and Plano Clark (2018), which begins with a quantitative phase followed by a qualitative phase aimed at deepening the understanding and interpretation of quantitative findings. This design is considered most appropriate for the nature of the phenomenon under study, which requires statistical measurement of usage patterns and relationships between variables on one hand, and an in-depth understanding of meanings, perceptions, and experiences on the other.

Quantitative Phase

1- **Study Population and Sample**

The study population comprised journalists, editors, and digital content creators working in Arab media organizations across six countries: Egypt, the Kingdom of Saudi Arabia, the United Arab Emirates, Jordan, Lebanon, and Morocco. These countries were selected to represent the diversity of Arab media environments in terms of digital transformation levels, technical infrastructure, and regulatory frameworks.

Multi-stage Stratified Sampling was employed, whereby media organizations in each country were classified into three categories: digital-native media organizations, legacy media with digital transition, and independent content production companies and platforms. The final sample valid for analysis comprised (412) individuals after excluding incomplete questionnaires, with a response rate of (68.7%) of total distributed questionnaires.

The sample distribution was as follows: males constituted (56.3%) and females (43.7%). Regarding age distribution, the (25–34) age group represented the largest proportion at (38.1%), followed by the (35–44) group at (31.3%), then the (45–54) group at (18.9%), and finally the (55 and above) group at (11.7%). In terms of years of experience, the sample was distributed among less than 5 years (22.8%), 5 to 10 years (33.5%), 11 to 20 years (28.4%), and more than 20 years (15.3%). Regarding institution type, (39.6%) worked in digital-native organizations, (42.2%) in digitally transformed legacy organizations, and (18.2%) in independent content production platforms.

2- **Quantitative Research Instrument: The Questionnaire**

A structured electronic questionnaire was designed using the Qualtrics platform, consisting of five main sections. The first section collected demographic and professional data (12 items). The second section measured patterns of generative AI tool usage (18 items) on a five-point Likert scale. The third section addressed the perceived impact on content quality (15 items). The fourth section explored ethical and professional challenges (14 items). The fifth section measured the perceived level of digital competence (10 items) using a scale adapted and modified from the European Digital Competence Framework (DigComp 2.2).

The questionnaire underwent rigorous validation and standardization procedures. It was presented to a panel of seven expert reviewers specializing in digital media, research methodology, and artificial intelligence, and the necessary modifications were made based on their observations. A Pilot Study was then conducted on a sample of (45) individuals to test clarity of wording and appropriateness of completion time. Cronbach's Alpha for the overall questionnaire was (0.91), with subscale values ranging between (0.84) and (0.93), indicating a high level of internal consistency. A Confirmatory Factor Analysis (CFA) was also conducted using AMOS v.28 to test the construct validity of the instrument, and the fit indices showed acceptable values: $\chi^2/df = 2.14$, CFI = 0.94, TLI = 0.92, RMSEA = 0.05, SRMR = 0.04.

3- **Statistical Methods**

Quantitative data were analyzed using SPSS v.29 and AMOS v.28. The following statistical methods were employed: descriptive statistics (means, standard deviations, frequencies, and percentages) to describe usage patterns and demographic characteristics; Pearson Correlation to test relationships between continuous variables; One-Way ANOVA with Scheffé post hoc comparisons to examine differences between groups; Stepwise Multiple Regression to identify predictor variables for the degree of generative AI tool adoption; and K-means Cluster Analysis to classify user patterns. A significance level of ($\alpha = 0.05$) was adopted for all statistical tests.

Qualitative Phase

1- **Participants**

Semi-structured in-depth interviews were conducted with (28) experts and specialists selected according to Purposive Sampling, distributed as follows: (10) senior journalists and editors at leading media organizations, (8) specialists in artificial intelligence and media technologies, (5) academics in schools of journalism and communication, and (5) officials responsible for editorial policies and media ethics. Geographic, professional, and gender diversity was ensured in the selection of participants.

2- **Interview Protocol**

An interview guide was prepared containing (15) open-ended main questions with subsidiary Probing Questions, covering the following themes: participants' perceptions of the impact of generative AI tools on media practice, their personal experiences using these tools or encountering their outputs, the ethical challenges they had faced or anticipated, and their vision for the future of the human-machine relationship in media production. Interviews ranged from (45) to (90) minutes in duration, were conducted via Zoom between May and July 2024, and were recorded with participants' consent.

3- **Qualitative Data Analysis**

Thematic Analysis was adopted following the framework of Braun and Clarke (2006/2021), comprising six phases: Familiarization with the data, Initial Coding, Generating Themes, Reviewing Themes, Defining and Naming Themes, and writing the final report. NVivo 14 software was used to manage the coding process and organize themes.

To ensure Trustworthiness in qualitative research in accordance with Lincoln and Guba (1985) criteria, several procedures were implemented, including: Credibility through Methodological Triangulation between quantitative and qualitative data and Peer Debriefing; Transferability through Thick Description of contexts and participants; Dependability through an Audit Trail; and Confirmability through Reflexivity and documentation of analytical decisions.

Results

Quantitative Phase Results

1- **Patterns of Generative AI Tool Usage (RQ1)**

The results showed that (78.4%) of respondents (n = 323) use at least one generative AI tool in their media work, while (21.6%) reported not using any tool. Among users, ChatGPT ranked first with a usage rate of (89.2%), followed by Google Gemini at (41.5%), then Midjourney at (34.7%), DALL-E at (28.3%), and finally Claude at (19.6%).

Regarding the production stages in which these tools are employed, their ranking according to mean scores on the five-point Likert scale was as follows: the brainstorming and idea generation stage with a mean of (3.87) and standard deviation of (0.92); the research and initial information gathering stage with a mean of (3.71) and standard deviation of (0.88); the initial draft writing stage with a mean of (3.54) and standard deviation of (1.03); the editing and rewriting stage with a mean of (3.41) and standard deviation of (0.95); the headline and summary generation stage with a mean of (3.38) and standard deviation of (1.01); the translation and multilingual reformulation stage with a mean of (3.22) and standard deviation of (1.12); the accompanying visual content production stage with a mean of (2.94) and standard deviation of (1.18); and finally the final publication without modification stage with a mean of (1.86) and standard deviation of (0.94).

It is notable that the highest levels of usage are concentrated in the early stages of the production chain (brainstorming, initial research), while usage decreases markedly at the final publication stage, suggesting that media practitioners view these tools as assistive instruments in preparatory stages rather than as substitutes for human editorial judgment in final stages.

Regarding frequency of use, (23.2%) of users reported using these tools daily, (35.6%) several times per week, (24.8%) once per week, and (16.4%) monthly or less.

2- **Perceived Impact on Content Quality (RQ2)**

The results revealed a complex picture of the impact of generative AI tools on content quality indicators. In terms of perceived positive effects, (63.1%) reported a noticeable improvement in production speed, (57.3%) reported improvement in linguistic and stylistic diversity, (48.9%) reported improvement in the structural organization of content, and (44.2%) reported improvement in overall productivity. In terms of perceived concerns and negative effects, (54.6%) expressed concerns related to accuracy and credibility, (51.8%) expressed concerns related to originality and innovation, (47.3%) expressed concerns related to bias in generated content, and (39.5%) expressed concerns related to loss of a distinctive editorial voice.

To measure the aggregate perceived impact on content quality, a Composite Index was computed from four dimensions (accuracy, originality, depth, diversity). The results were as follows: the production speed and efficiency dimension

achieved the highest mean of (3.94) with a standard deviation of (0.87); followed by the linguistic and stylistic diversity dimension with a mean of (3.47) and standard deviation of (0.94); then the structural organization and coherence dimension with a mean of (3.31) and standard deviation of (0.99); then the accuracy and credibility dimension with a mean of (2.68) and standard deviation of (1.08); and finally the originality and analytical depth dimension with a mean of (2.43) and standard deviation of (1.14).

These results reveal a clear pattern: generative AI tools achieve tangible gains in "efficiency" dimensions (speed, diversity, organization) but raise concerns in "deep quality" dimensions (accuracy, originality, depth).

3- **Ethical and Professional Challenges (RQ3)**

When participants were asked about the most prominent ethical and professional challenges, responses were ranked by severity of concern as follows: the potential for disseminating inaccurate or misleading information with a mean of (4.21) and standard deviation of (0.83); the lack of transparency regarding information sources in generated content with a mean of (4.08) and standard deviation of (0.91); intellectual property rights violations with a mean of (3.96) and standard deviation of (0.97); cultural and informational bias in outputs with a mean of (3.89) and standard deviation of (0.94); erosion of fundamental journalistic skills with a mean of (3.74) and standard deviation of (1.02); threats to media employment with a mean of (3.67) and standard deviation of (1.11); and finally the absence of clear regulatory frameworks with a mean of (3.58) and standard deviation of (1.06).

4- **Differences According to Demographic and Professional Variables (RQ4)**

Testing Hypothesis 1 (H1): Pearson correlation analysis revealed a strong, positive, and statistically significant correlation between perceived digital competence level and the degree of generative AI tool adoption ($r = 0.71$, $p < 0.001$), thus supporting the first hypothesis. This means that journalists who possess higher levels of digital competence are more inclined to adopt and employ these tools in their professional practice.

Testing Hypothesis 2 (H2): One-Way ANOVA revealed statistically significant differences in the degree of generative AI tool adoption attributable to the age group variable, $F(3, 408) = 14.73$, $p < 0.001$, $\eta^2 = 0.098$. Scheffé post hoc comparisons showed that the (25–34) age group recorded the highest mean adoption score ($M = 3.89$, $SD = 0.84$), followed by the (35–44) group ($M = 3.52$, $SD = 0.91$), then the (45–54) group ($M = 3.11$, $SD = 1.03$), and finally the (55+) group ($M = 2.67$, $SD = 1.15$). The differences were statistically significant between the first group (25–34) and both the (45–54) and (55+) groups, thus supporting the second hypothesis.

Testing Hypothesis 3 (H3): Pearson correlation analysis revealed a moderate, negative, and statistically significant correlation between years of professional experience and the degree of reliance on generative AI tools ($r = -0.43$, $p < 0.001$), partially

supporting the third hypothesis. However, when the digital competence variable was statistically controlled through Partial Correlation, the relationship value decreased to ($r = -0.19$, $p < 0.01$), suggesting that digital competence explains a substantial portion of the variance ostensibly attributed to years of experience.

Testing Hypothesis 4 (H4): One-Way ANOVA revealed statistically significant differences in patterns of generative AI tool employment attributable to the type of media organization, $F(2, 409) = 11.28$, $p < 0.001$, $\eta^2 = 0.052$. Digital-native organizations recorded the highest mean ($M = 3.78$, $SD = 0.89$), followed by independent content production platforms ($M = 3.51$, $SD = 0.97$), then digitally transformed legacy organizations ($M = 3.12$, $SD = 1.04$), thus supporting the fourth hypothesis.

5- **Predictive Model for Generative AI Tool Adoption**

Stepwise Multiple Regression was conducted to identify the variables most capable of predicting the degree of generative AI tool adoption. The final model included four independent variables that collectively explained (58.3%) of the variance in the dependent variable, $F(4, 407) = 142.31$, $p < 0.001$, $R^2 = 0.583$. Digital competence level ranked first ($\beta = 0.44$, $p < 0.001$), followed by age group ($\beta = -0.21$, $p < 0.001$), then media institution type ($\beta = 0.17$, $p < 0.01$), and finally attitude toward technology ($\beta = 0.14$, $p < 0.01$). These results are consistent with the diffusion of innovations theory in affirming the pivotal role of technical competence and institutional environment characteristics in determining adoption patterns.

6- **User Pattern Classification: Cluster Analysis**

K-means cluster analysis revealed five distinct patterns of generative AI tool employment among media practitioners.

The first pattern consists of "Advanced Adopters," who constituted (14.3%) of the sample and are characterized by intensive and diverse employment of multiple tools across all production stages, with a high level of competence in Prompt Engineering and critical evaluation of outputs. The second pattern comprises "Selective Integrators" at (28.6%), who use specific tools at particular stages—especially brainstorming and initial research—with an emphasis on direct human oversight. The third pattern represents "Cautious Experimenters" at (22.1%), who are in early exploratory stages with a tendency toward apprehension and uncertainty. The fourth pattern includes "Passive Resisters" at (13.4%), who are familiar with these tools but refrain from using them for professional or ethical reasons. Finally, the fifth pattern consists of "Categorical Rejectors" at (21.6%), who completely reject these tools and consider them a threat to the profession.

Qualitative Phase Results

1- **Extracted Main Themes**

Thematic analysis of the in-depth interview data yielded six main themes, each containing sub-themes.

- **Theme One: Redefining the Professional Identity of the Journalist**

The majority of participants expressed a sense that generative AI tools are redefining what it means to be "a journalist" in the current era. One senior editor (Participant 7) explained: "The journalist is no longer merely one who writes; rather, it is one who knows how to ask the machine the right question, evaluate its answer, and add the human dimension that the machine cannot provide." An investigative journalist (Participant 12) expressed deeper concerns: "I fear we will transform from journalists who seek the truth into curators who repackage what the algorithm produces." These findings intersect with the concept of the "Hybrid Journalist" that has begun to emerge in contemporary literature.

- **Theme Two: The Speed Versus Depth Dialectic**

A clear tension emerged between the gains achieved in production speed and concerns related to declining depth and analysis. One newsroom director (Participant 3) described: "Yes, we have become faster, but speed in journalism is a double-edged sword. ChatGPT gives you a draft in seconds, but verifying it may take hours." A specialist academic (Participant 19) added: "We face a paradox: the tool that is supposed to free the journalist to focus on deep investigative work may tempt them to settle for the surface."

- **Theme Three: Embedded Bias and Cultural Hegemony**

Participants raised deep concerns about the cultural biases latent in generative AI models, particularly in the context of Arabic content. One technical expert (Participant 15) explained: "These models were trained primarily on English data reflecting Western perspectives. When you ask ChatGPT to write a report on a Middle Eastern issue, you may receive content reflecting Western media biases without the user realizing it." Another participant (Participant 22) affirmed: "The Arabic language in these models remains a second-class citizen compared to English, and this is reflected in the quality and accuracy of outputs."

- **Theme Four: The Policy and Regulatory Framework Gap**

Participants unanimously agreed on the existence of a significant regulatory vacuum in the Arab region regarding the use of generative AI in media. One editorial policy official (Participant 9) stated: "We do not have a clear institutional policy on when and how these tools can be used. Every journalist acts according to their personal judgment, and this is a dangerous situation." A specialist academic (Participant 24) added: "We need Arab ethical frameworks emanating from our own context, not merely translations of Western guidelines."

- **Theme Five: Reshaping Media Gatekeeping (RQ5)**

Interview data provided rich insights into how generative AI tools are reshaping media gatekeeping mechanisms. One editor-in-chief (Participant 1) described the new situation: "There is now an invisible layer of gatekeeping that precedes our editorial decision. The algorithm determines what information is included in the generated draft before we see it." An AI expert (Participant 16) explained: "The algo-

rithmic gatekeeper differs from the human one in that it does not possess awareness of its decisions and cannot be held accountable. It reflects statistical patterns in data, not deliberate editorial judgments."

- **Theme Six: The Future of Human-Machine Coexistence in Media Production**

Participants' views diverged regarding the future of the relationship between journalists and generative AI. Some argued that these tools would free journalists from routine tasks and allow them to focus on creative and investigative work, as expressed by Participant 5: "I envision a future in which AI serves as the engine and the journalist as the captain. The machine executes, but the human directs and evaluates." Others warned of darker scenarios, as Participant 21 stated: "If we do not establish controls now, we may find ourselves a decade from now in a media environment filled with automatically generated content indistinguishable from human content, and this undermines the foundations of trust in media."

Discussion

Discussion of Results in Light of Previous Literature and Theoretical Framework

The results of this study present a comprehensive and complex picture of the relationship between generative AI tools and media practice in the Arab context, enriching the international academic dialogue on this subject with new empirical evidence.

1- **The Pattern of Cautious, Gradual Adoption**

The high usage rate (78.4%) reveals that generative AI tools have transcended the "technological novelty" stage and become part of the professional reality for the majority of Arab media practitioners. However, the usage pattern itself reveals cautious and graduated adoption: the focus on preparatory stages (brainstorming, initial research) and the avoidance of direct publication point to what may be termed "Mediated Adoption," where the tool is integrated into the workflow while human control over final outputs is retained.

This finding is consistent with Rogers' diffusion of innovations theory, as the majority of Arab media practitioners appear currently to be in a transitional phase from the "Early Majority" to the "Late Majority," with a clear cohort of "Early Adopters" (Pattern One: Advanced Adopters at 14.3%) leading the adoption process. These findings align with what Weaver et al. (2023) found regarding patterns of new technology adoption in newsrooms, which confirmed that adoption typically occurs gradually, beginning with peripheral tasks before progressing to core tasks.

2- **The Efficiency-Quality Equation**

The results highlight a complex equation between efficiency gains and quality challenges. While generative AI tools achieve clear gains in "production efficiency" dimensions (speed, linguistic diversity, structural organization), they raise genuine questions about "substantive quality" dimensions (accuracy, originality, depth). This equation can be interpreted through the lens of soft technological determinism: the technical tool imposes its characteristics on the nature of the content (a tendency

toward fluency at the expense of accuracy, and toward generalization at the expense of depth), but the human agent possesses the capacity to adapt to these characteristics and compensate for weaknesses through verification, editing, and enrichment.

These findings intersect with Wölker and Powell's (2024) conclusion that AI-generated content excels on formal measures (fluency, organization) but declines on substantive measures (depth, contextuality), confirming that these tools are "Surface Tools" more than "Depth Tools" in their current stages.

3- **Digital Competence as a Primary Determinant**

The emergence of digital competence as the strongest predictor of generative AI tool adoption ($\beta = 0.44$) constitutes a finding of profound importance from both theoretical and applied perspectives. Theoretically, this confirms that the "Complexity" of an innovation—one of the determinants of adoption in Rogers' theory—is not an absolute property of the tool itself but a relative property determined by the interaction between the tool and the user's competence. From an applied perspective, this suggests that investment in developing journalists' digital competencies represents the most effective entry point for promoting conscious and responsible adoption of these tools.

Furthermore, the decline in the strength of the relationship between years of experience and degree of adoption when the digital competence variable is controlled (from $r = -0.43$ to $r = -0.19$) reveals that what appears to be "resistance of older generations" to technology is in reality a reflection of a gap in digital competence rather than an ideological rejection of technology per se.

4- **Hybrid Gatekeeping: An Emerging Model**

The qualitative findings confirm the necessity of re-theorizing the concept of media gatekeeping in light of generative AI tools. The traditional model that assumes the existence of a conscious human gatekeeper making deliberate decisions is no longer sufficient for explaining the dynamics of contemporary media production. The "Hybrid Gatekeeping" concept proposed by this study offers a more appropriate framework, wherein the gatekeeping process is shaped by the interaction of three overlapping layers: the algorithmic layer (inclusion and exclusion decisions embedded in the generative model), the human layer (editorial judgment, verification, and evaluation), and the institutional layer (regulatory policies and guidelines).

What makes this model concerning is that the algorithmic layer operates in an "Opaque" manner, meaning that the journalist using ChatGPT to generate an initial draft may not realize that the tool has already performed an implicit "gatekeeping" operation by selecting certain information and omitting others based on statistical patterns in training data. This is consistent with Diakopoulos' (2023) warnings about the "Hidden Gate" exercised by algorithms without users' awareness.

5- **Cultural Bias: A Compounded Problem in the Arab Context**

The qualitative findings highlight a critical dimension that has not received sufficient attention in international literature: cultural bias in generative AI tools

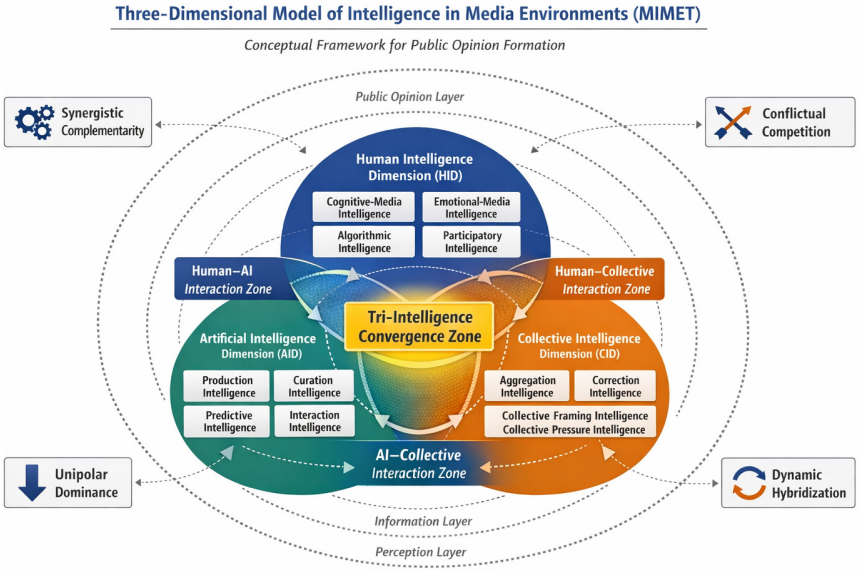
and its impact on Arab media content. These tools, trained primarily on English data reflecting Western perspectives, may produce Arabic content bearing a "foreign cultural fingerprint" manifested in the selection of angles, sources, terminology, and even narrative structures. This is what Bender et al. (2021) term the "Stochastic Parrots" danger, whereby language models reproduce dominant data patterns without genuine understanding of cultural and social contexts.

In the Arab context, this risk is compounded by the limited availability of high-quality Arabic content in training data and the dominance of Western perspectives in global digital information sources, potentially leading to a form of "Digital Colonialism" wherein Arab issues are reframed through Western cultural lenses embedded in the algorithms.

Proposed Integrative Conceptual Framework

Based on the quantitative and qualitative findings, this study proposes an integrative conceptual framework termed the "Triadic Interaction Model of Generative Media" (TIMGM). This model comprises three interacting components. The first component, the "Human Agent," encompasses digital competencies, professional expertise, editorial judgments, and ethical values. The second component, the "Algorithmic Agent," encompasses generative capabilities, latent biases, and knowledge limitations. The third component, the "Institutional and Cultural Context," encompasses regulatory policies, professional culture, and legal frameworks.

The model posits that the quality of media content produced with the assistance of generative AI is the product of the interaction of these three components, and that any deficiency in one component—whether weakness in human competence, shortcomings in the algorithmic model, or absence of institutional frameworks-negatively affects the quality and reliability of final outputs.



Theoretical Contributions

This study offers several theoretical contributions. First, expanding gatekeeping theory through the introduction of the "Hybrid Gatekeeping" concept that integrates the algorithmic agent as a new layer in the media gatekeeping process. Second, presenting the TIMGM model as an integrative analytical framework for studying the dynamics of generative media. Third, enriching the diffusion of innovations theory with empirical data from a cross-national Arab media context, highlighting the pivotal role of digital competence as a determinant of adoption. Fourth, uncovering "embedded cultural bias" as a structural problematic in employing generative AI tools in non-Western contexts.

Study Limitations

Despite the researcher's commitment to methodological rigor, this study entails several limitations that should be considered when interpreting the results. In terms of the sample, the quantitative phase partially relied on a non-probability sample due to the difficulty of accessing a comprehensive sampling frame for all media practitioners in the countries studied, which limits the generalizability of findings to the entire study population. Additionally, reliance on self-reports in measuring usage patterns and perceived impact may involve biases related to Social Desirability Bias or inaccurate self-estimation. Furthermore, the extremely rapid pace of generative AI tool development means that some findings may be affected by continuous updates to these tools since the data collection period.

Conclusion and Recommendations

Conclusion

This study presented a comprehensive analysis of the impact of generative AI tools on the ecosystem of journalistic and creative content production in the Arab media environment, drawing upon a mixed-methods research design and an integrative theoretical framework. The findings reveal that these tools have become part of the professional reality for the majority of Arab media practitioners, though the adoption pattern is characterized by caution, gradualism, and selectivity.

The impact is neither unidirectional nor homogeneous; rather, it is a compound effect shaped by the interaction of human competencies, algorithmic capabilities, and institutional contexts. While these tools achieve clear gains in production efficiency and diversity, they raise fundamental challenges related to accuracy, originality, bias, and transparency.

Generative AI tools are redefining the journalist's role from "primary content producer" to "coordinator, verifier, and auditor of automatically generated content"—a transformation that necessitates a reconsideration of fundamental concepts such as authorship, originality, gatekeeping, and editorial responsibility. This transformation also requires the development of new professional competencies that extend beyond traditional journalistic skills to include Prompt Engineering, criti-

cal evaluation of algorithmic outputs, and a basic understanding of the operational mechanisms of large language models.

Recommendations

1- **Recommendations for Media Organizations**

Arab media organizations urgently need to develop clear and detailed editorial policies that regulate the use of generative AI tools across the various stages of media production, with clear delineation of the scope of permitted and prohibited use and mechanisms for disclosure and transparency. They must also invest in systematic training programs to develop the digital competencies of journalistic staff, including prompt engineering skills, critical evaluation, and verification of algorithmic outputs. It is also important to establish specialized teams (AI Desks) within newsrooms to assume responsibility for evaluating and testing AI tools and developing optimal use protocols.

2- **Recommendations for Policymakers**

Policymakers in the Arab region should take the initiative in establishing regulatory and legislative frameworks governing the use of generative AI in media, while balancing the protection of the public interest and avoiding the impediment of innovation. This requires cooperation among regulatory bodies, media organizations, academic circles, and civil society organizations. It is also recommended to support research initiatives aimed at developing AI models trained on high-quality Arabic data to reduce cultural bias in outputs.

3- **Recommendations for Schools of Journalism and Communication**

Schools of journalism and communication in Arab universities need to update their curricula to include specialized courses in artificial intelligence and media, digital ethics, and Algorithmic Literacy. It is also recommended to enhance the applied dimensions of media education by establishing equipped media laboratories that allow students direct interaction with generative AI tools in a supervised educational environment.

4- **Future Research Directions**

The findings of this study open wide horizons for future research. On the methodological front, the study recommends conducting Experimental Studies that compare, in a controlled manner, the quality of content produced with AI assistance against content produced entirely by humans, using objective and multidimensional evaluation criteria. On the audience front, there is an urgent need for studies that explore the Arab public's perceptions of AI-generated content and their level of trust in it. Longitudinal Studies are also recommended to track the evolution of generative AI tool usage patterns in Arab media organizations over time. Finally, the need for Cross-cultural Comparative Studies is evident, comparing adoption patterns and associated challenges across different cultural and linguistic contexts.

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