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Article Review

Visual Media Research in the Age of Artificial Intelligence: A Systematic Review of Research Trends in Iraq

Mogeth Saad Alwan, Anas Ali Abdul Wahid
University of Thi-Qar, College of Media, Department of Radio and Television Journalism
Mogeth.saad@utq.edu.iq

Abstract: The study aimed at monitoring and analyzing the trends of Iraqi scientific research dealing with visual media in the context of AI technologies from 2015 to 2024. The review process was based on the PRISMA protocol and included Arab and international academic databases. Using inclusion and exclusion criteria, 46 studies were included in the final analysis. The results indicate five key themes: the use of artificial intelligence in newsrooms, deepfakes and their impact on credibility, algorithmic analysis of visual content, audience interaction with AI-generated content, and ethical and legal issues. The results also indicate that descriptive and qualitative approaches dominate, there are few computational and experimental studies, and theoretical background is poor in most studies. The study recommends developing a multidisciplinary Iraqi research agenda, building visual data infrastructure, and upgrading Arabic language processing tools for media research.

Keywords: Visual media, artificial intelligence, Iraq, systematic review, deepfake, content analysis.

1. Introduction

Visual media is undergoing a transformation with the emergence of artificial intelligence technologies that is not only about automating the processes of journalism but also about content creation, image and video analysis, news feed personalization, virtual characters creation, voice synthesis as well as deep video clips, deepfakes. This has forced media institutions and academia to re-examine visual production, audience relationships with content, professional ethics and research approaches to study these phenomena. There has been a rapid growth in satellite channels and digital platforms in Iraq since 2003 and a proliferation of postgraduate courses in media colleges and departments also. However, Iraqi research output on artificial intelligence in visual media still lacks a systematic review that reveals its trends, identifies its gaps, and proposes future priorities. Hence, this study aims to fill an important knowledge gap through a systematic review of Iraqi research published in this field.

Research Problem and Questions

The research problem lies in the absence of a clear picture of the reality of Iraqi visual media research in light of artificial intelligence technologies at the level of topics, methods, theoretical frameworks, and knowledge gaps. Accordingly, the study seeks to answer the following main question:

What are the trends of Iraqi research in the field of visual media in the age of artificial intelligence?

The following sub-questions derive from it:

1. What thematic areas have Iraqi studies addressed in this field?
2. What research methods and tools are most commonly used?
3. What theoretical frameworks have these studies adopted?
4. What gaps and challenges can be identified from the Iraqi literature?

Significance of the Study

This review is important from three points of view:

- **Scientifically**: It provides a synthetic description of Iraqi research at the intersection of visual media and artificial intelligence, and points out the leading trends and gaps.
- **Academically**: It helps researchers and postgraduate students spot the under-researched topics and what are the best methodological approaches.
- **Professionally and institutionally**: It provides Iraqi media institutions and decision makers with a knowledge map that they can use to develop newsrooms, content policies, and AI ethics.

2. Study Methodology

This study performed a systematic review in accordance with PRISMA and involved four basic stages: identification, screening, inclusion, and analysis. We chose that method because it was most appropriate for describing research output in an interdisciplinary field in a transparent and reproducible manner.

2.1. Search Sources and Databases

Academic databases and search engines in Arabic and English were used, including Arabic peer-reviewed academic journals, Dar Al-Mandumah, Google Scholar, Scopus, DOAJ and Iraqi Researcher Portal. Arabic and English search terms were used: artificial intelligence and visual media in Iraq, deepfake in Iraq, analysis of Iraqi press images, Iraqi satellite channels and artificial intelligence, AI visual media Iraq, deepfake Iraqi media, computer vision journalism Iraq, and machine learning visual content Iraq. Inclusion and exclusion criteria were taken as five main dimensions:

- **Time period:** Studies published between 2015 and 2024 were included; studies outside this period were excluded.
- **Geographical scope:** Inclusion was limited to studies that dealt with Iraq or were conducted by Iraqi researchers.
- **Topic:** Studies that combined visual media with artificial intelligence technologies were included, while studies of print or radio media without a visual dimension were excluded.
- **Language:** Inclusion was limited to Arabic and English.
- **Type:** Studies published in peer-reviewed journals or scientific conferences were included. Opinion articles and non-peer-reviewed press reports were excluded. After applying the criteria, 143 studies were screened and 97 were excluded for lack of direct relevance, leaving 46 studies for final analysis

2.2. Coding and Analysis Procedures

The analysis was done using a content coding scheme that included year of publication, type of study, topic, method, tools, theoretical framework, type of visual medium, and level of engagement with artificial intelligence. The studies were coded and analyzed based on qualitative thematic synthesis, where dispersed findings can be combined into general themes and patterns and gaps can be identified.

Theoretical Framework

This research uses a multi-perspective theoretical framework that integrates media theory and technological understanding, allowing Iraqi studies on visual media and artificial intelligence to be considered in a holistic way. These are the theoretical approaches which are the most approachable to explain the three main phenomena in the field of technology adoption, visual content production, and audience interaction.

Media Richness Theory

Media Richness Theory is one of the main explanations for the development of visual media in the digital world. It believes that a medium's ability to communicate more than one signal, give very quick feedback, change language, and personalize the message means the richness of the medium and its ability to address ambiguous or complex tasks[1]. In view of this theory, artificial intelligence can be viewed as a factor that adds an extra layer of richness to visual media. With image and video generation technologies, virtual news presenters and augmented reality we have more visual simulation and interaction in real time but also the ability to make real-time communication. This approach can help interpret Iraqi studies that ask to what extent machine-generated visual content is

able to communicate with human and how much people perceive machine-generated content as different from humans?

Technology Acceptance Model

The Technology Acceptance Model explains the way people feel about technological innovations based on two factors: perceived usefulness and perceived ease of use[2]. In Iraqi media, this model is even more fundamental, since the local media landscape is characterized by the lack of digital infrastructure, lack of technical training, and lack of resources available at public and private institutions. Thus this model can be used to gauge journalists and editors in Iraqi newsrooms towards automated editing technology, visual content management systems, and virtual news presenters. It also explains why some workers are willing to adopt these technologies as a means of speeding up production but others are unwilling as they think they are too complicated or have job loss fears.

Critical Algorithmic Approach to Media

The critical algorithmic approach goes beyond a theoretical perspective of technology; it considers algorithms and artificial intelligence as a key component in the production, distribution and classification of news and questions transparency, bias, accountability and the audience's relationship with automated content[3]. This is also useful as an analysis of the Iraqi research that has covered visual content analysis via computer vision and machine learning techniques as well as deepfakes. The conceptual framework facilitates the examination of algorithms in classifying images and video and whether they contribute to implicit biases as a result of data or model design limitations. This model also allows us to assess the maturity of the Iraqi research in the areas of algorithmic transparency and professional accountability.

Social Responsibility Theory

Social Responsibility Theory is based on the assumption that the media have ethical responsibilities to society and that their freedom is conditioned by serving the public interest and respecting rights and freedoms[4]. The importance of this approach increases in the context of AI-enhanced visual media, as new problems arise with privacy, intellectual property, authenticity of machine-generated images and video clips and media institutions' responsibility for false or misleading content. In the current context of Iraq, where there are no established legal systems for the use of artificial intelligence in the media, the social obligation of journalists and institutions becomes more urgent. This framework is useful to understand Iraqi studies dealing with the ethical and legal aspects of machine-generated visual content and the organizational and professional gaps in this area.

Uses and Gratifications Theory

Uses and Gratifications Theory proceeds from the assumption that the audience is not a passive receiver but actively seeks to select media and content that meet its psychological, social, and cognitive needs[5]. In the context of AI-generated visual content, this theory makes it possible to interpret the motives of Iraqi audiences for exposure to virtual news presenters, algorithmically generated video clips, and content recommended by algorithms on platforms such as YouTube and TikTok. It also helps understand gratifications related to visual identity verification, technological curiosity, entertainment, and social participation. This approach is suitable for analyzing studies that focused on audience interaction with synthetic visual content and on the degree of acceptance of this new type of media production.

Diffusion of Innovations Theory

Diffusion of Innovations Theory explains how technological innovations are adopted and spread within social systems over time, and identifies innovation characteristics that affect the speed of adoption, such as relative advantage, compatibility, complexity, trialability, and observability[6]. In Iraqi media, this framework is useful for understanding the stages of adoption of artificial intelligence technologies in visual media institutions and what makes it possible or difficult to accelerate or hinder this spread in these institutions. The relative advantage in time and effort saved, compatibility with the current professional culture, and technical complexity may be reasons for the variability among Iraqi organizations in the adoption of artificial intelligence. And it also shows training and institutional support are very much important in moving these technologies from being experimental to being used to a stable level. In combination, these theoretical approaches make up a map of analysis and help Iraqi studies be classified by technological adoption, audience perception, content nature, and ethical

responsibility. This review is based on this map and not on a single theory, but we take into account that it is based on a different kind of phenomenon in each thematic sector.

3. Results & Discussion

Temporal and Institutional Distribution

The results showed that the growth in Iraqi research on artificial intelligence and visual media began significantly after 2019, with a remarkable increase in 2022 and 2023.[7] Most studies were concentrated in media colleges at Iraqi universities, particularly the University of Baghdad, Al-Mustansiriya University, University of Mosul, and Ahl al-Bayt University, as well as some technical and computer science colleges.[8]

Thematic Areas

The studies were distributed across five main thematic areas:

A. The Use of Artificial Intelligence in Newsrooms and Television Production

These studies dealt with the use of technologies such as automated editing, virtual news presenters, the generation of illustrated reports, and visual content management systems.[9] They mostly focused on Iraqi satellite channels and on the attitudes of workers toward adopting these technologies.

B. Deepfakes and Their Impact on the Credibility of Visual Content

Deepfakes constituted one of the most present topics, as studies addressed the Iraqi public's perception of fabricated visual clips, their impact on trust in news institutions, and journalists' ability to detect them.[10] These studies showed weak public awareness of the seriousness of deepfakes and the absence of clear editorial policies to confront them.

C. Algorithmic Analysis of Visual Content

A limited number of studies dealt with the use of computer vision and machine learning techniques in analyzing news images and video clips, such as image classification, facial expression analysis, and video manipulation detection.[11] Despite their novelty, these studies were often more technical than media-oriented in nature.

D. Audience Interaction with AI-Generated Visual Content

These studies focused on the Iraqi public's attitudes toward machine-generated content, the degree of acceptance of virtual news presenters, the level of awareness of the difference between human and machine content, and motives for exposure to algorithmic visual content.[12]

E. Ethical and Legal Dimensions of Artificial Intelligence in Visual Media

These studies addressed issues of privacy, intellectual property, professional responsibility for machine-generated content, and the absence of explicit Iraqi legal frameworks regulating the use of artificial intelligence in the media.[13]

Methodological Trends

The results showed that descriptive and survey methods were the most commonly used, accounting for approximately 45% of the studies. Qualitative studies based on interviews and traditional content analysis followed at 25%, then case studies at 15%. Experimental and quasi-experimental studies were not more than 8%, while computational approaches based on machine learning made up 7% of the total studies.[14] Mixed methods were also largely absent, and longitudinal studies that track the phenomenon over time were rare.

Theoretical Frameworks in Iraqi Studies

Iraqi studies involved various theoretical frameworks, the most famous ones are Uses and Gratifications Theory, Media Richness Theory, Technology Acceptance Model, Media Dependency Theory, and Social Responsibility Theory. But a lot of these studies did not really have a clear theoretical framework and they described the phenomenon directly.

4. Discussion

According to the review of this paper, Iraqi research in visual media and AI is in a developing stage. On one hand, it has caught up with global trends, such as deepfakes and virtual news presenters, but also does not leave conventional thinking behind. This is due to three reasons:

- Weak research infrastructure: Many Iraqi researchers do not have access to large visual databases, computational analysis software, or training in programming.

- Traditional media specialization is still dominant in Iraqi media colleges: In many postgraduate courses in Iraqi media colleges, descriptive methods and traditional theories are the dominant courses, and computing and data science is not well integrated into curricula.
- Lack of interdisciplinary collaboration between media scholars and computer scientists or engineers is rare, and in this regard, research that integrates media knowledge with technical capability is not likely to be produced. In line with global trends, international research has moved beyond just the study of journalists' attitudes toward building AI systems for video analysis, deepfake detection, content generation, algorithmic bias, and the psychological and social effects of machine-generated content. But Iraqi studies mostly investigate the phenomenon from the outside, that is, surveys the opinions of the audience or workers without analytical tools or applied models.

Research Gaps and Challenges

According to the previous analysis, the following gaps can be identified:

- ✓ A scarcity of computational and experimental studies on the impact of AI-generated visual content.
- ✓ The absence of open Iraqi datasets on news images and video clips.
- ✓ There are not enough studies on algorithmic bias and its relation to cultural and religious diversity in Iraq.[15]
- ✓ There is little research on recommendations from video sites such as YouTube and TikTok and their impact on Iraqi audiences.
- ✓ An absence of research on intellectual property and legal liability for harms resulting from machine-generated visual content.
- ✓ The scarcity of longitudinal studies that track changes in the practices of Iraqi media institutions.

The findings further demonstrate that the methodological and theoretical limitations identified in Iraqi visual media research are closely connected to the stage of technological adoption within Iraqi media institutions. The dominance of descriptive and survey-based studies suggests that researchers are primarily documenting attitudes, perceptions, and emerging practices rather than empirically testing the performance or consequences of AI systems. This finding is consistent with the Technology Acceptance Model and Diffusion of Innovations Theory, as much of the existing literature appears to concentrate on perceived usefulness, acceptance, and barriers to adoption rather than on long-term institutional integration. At the same time, the limited use of computational and experimental approaches indicates that Iraqi research has not yet fully engaged with the technical dimensions of AI-based visual production and verification. Compared with international research, which increasingly examines algorithmic bias, automated content generation, deepfake detection, and human–AI interaction through computational and mixed-method designs, the Iraqi literature remains more exploratory and observational. This difference is important because the effects of AI on visual journalism cannot be adequately understood only through perceptions of journalists or audiences; they also require direct examination of algorithms, datasets, production workflows, and the accuracy and reliability of AI-generated content.

From a theoretical perspective, the findings indicate the need to move from the use of individual media theories toward integrated theoretical models capable of explaining the interaction between technology, media institutions, algorithms, and audiences. Media Richness Theory can help explain changes in the communicative capabilities of AI-enhanced visual content, while the Technology Acceptance Model and Diffusion of Innovations Theory explain institutional and professional adoption. However, the ethical and societal consequences identified in the review require the complementary application of the Critical Algorithmic Approach and Social Responsibility Theory. Practically, the results suggest that Iraqi media organizations should develop structured AI training for journalists and editors, establish editorial procedures for identifying and verifying synthetic visual content, and strengthen cooperation between media professionals and computer science specialists. Universities can contribute by incorporating computer vision, data analysis, AI ethics, and digital verification into media curricula. Such measures would help transform AI research from primarily descriptive observation into applied and interdisciplinary research capable of addressing the actual technological, professional, ethical, and societal challenges facing Iraqi visual media.

5. Conclusion

However, the review points out that Iraqi research in visual media and artificial intelligence is beginning to take shape, but this research is not easily developing to become a mature research field in terms of methodological and epistemological conditions. The research suggests the following: Development of a digital media course in Iraqi media colleges to integrate data analysis, computer vision, and AI ethics courses. To build digital media laboratories to train researchers in machine learning and video analysis tools in Iraqi universities. Engaging media colleges, engineering colleges, and computer science departments to foster interdisciplinary research. Deploying an Iraqi database for visual news content that is open for computational analysis and research and development. Encouraging experimental and mixed-methods research instead of taking descriptive surveys and biased studies in place. Establishing ethical and legal frameworks in Iraqi society to regulate artificial intelligence in visual media production. Supporting Iraqi journals to publish interdisciplinary research in media and artificial intelligence as well as special issues for this issue. This is no longer the case that artificial intelligence is a technical luxury of visual media but rather a starting point to understand the change in media production, audience, and journalism in Iraq and the wider Arab world.

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