

A Study on Paradigm Evolution and Collaborative Pathways in News Illustration Design Driven by AIGC

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ABSTRACT

In the "visual era" characterized by deep integration of digitization and intelligence, the pace of social life continues to accelerate. As a vital medium for information dissemination, news illustration has emerged as the urgently needed "fast-food style" reading format of today. Traditional news illustrations, characterized by lengthy production cycles and high costs, struggle to fully meet contemporary journalism's demands for immediacy and diversity. The rapid advancement of AI-generated content (AIGC) technology in recent years has injected new vitality into news illustration production through its efficiency and cost-effectiveness. However, AIGC applications have also sparked a series of controversies: generated content relies on big data probability calculations, making authenticity difficult to guarantee; copyright ownership remains ambiguous; and algorithmic logic leads to homogenized visual expressions, potentially causing audience aesthetic fatigue. Therefore, this paper aims to provide theoretical foundations and practical references for news illustration design through systematic comparative research, promoting the efficient and collaborative development of news illustration design. It seeks to drive the transformation of media from "converged media" to "intelligent media." Building upon this foundation, the paper further explores the human-machine collaboration pathway of "AI-generated drafts + human secondary creation." This approach aims to provide practical references for news media organizations to optimize illustration production models and mitigate technical risks, thereby helping news illustrations achieve balanced development of "technical efficiency" and "humanistic value" in the era of intelligence.

KEYWORDS

AIGC; News illustration; Information dissemination; Artificial intelligence; Comparative study

1 Research Background and Objectives

In the "visual era," audiences' information consumption has shifted from text-only formats to multimodal integration of images, videos, and interactive elements. Research indicates that the human brain processes images significantly faster than text, granting visuals greater immediacy and impact in information dissemination.

Traditional news illustrations offer distinct advantages in authenticity, artistic expression, and thematic coherence. However, their lengthy production cycles render them ill-suited for meeting the high-speed demands of contemporary news dissemination and adapting to fragmented reading habits. The emergence of AIGC technology provides a viable solution to this contradiction. AIGC technology, or Artificial Intelligence Generative Content, is increasingly adopted by media professionals. It not only rapidly generates high-quality images through algorithms to meet news timeliness demands but also integrates text, audio, and video—multimodal information—to enhance the quality and dissemination effectiveness of news illustrations. This advances human-machine interaction while unlocking new possibilities for the digital publishing industry. However, the "technological dividends" brought by AIGC are accompanied by ethical dilemmas and governance challenges. For instance, the generation of false images may mislead public opinion, while the opacity of training data raises copyright disputes. These issues demand urgent responses at both academic and practical levels. Against this backdrop, this paper aims to conduct a systematic comparative analysis to explore the differences between AIGC-empowered news illustrations and traditional illustrations. It seeks to reveal their complementary relationship in terms of production logic, artistic expression, and communication functions, while examining the future possibilities of human-machine collaboration in news illustration design.

2 Literature Review

2.1 The Functional Evolution of Traditional News Illustration: From "Documentation" to "Critique"

Since the 19th century, news illustrations have been an integral part of visual communication in newspapers and periodicals. In an era before photography became widespread, illustrations not only served the function of "documenting news" but also functioned as a vital window through which the public understood society and the world. With the advancement of printing technology, illustrations gradually found application in reporting major news events and cultural dissemination, becoming indispensable visual symbols in news communication.

2.2 Development and Application of AIGC Technology

The functional evolution of traditional news illustration can be divided into three stages, each closely tied to communication technology and societal demands:

Stage One (Mid-19th Century – Early 20th Century): Predominantly documentary. Photography had yet to become

widespread during this period (invented in 1839, but cumbersome equipment and high costs hindered its use in news reporting), making news illustration the primary means of documenting events. For example, the 1851 illustration of the Crystal Palace Exhibition published in Britain's *The Illustrated London News* used intricate lines to recreate the exhibition's architectural structures and crowds of attendees, serving as the public's sole visual channel for understanding the event at the time. Illustrations from this period centered on "realistic documentation," featuring relatively simple artistic expression but fulfilling the crucial role of "visual archives."

Phase Two (Early 20th Century – 1980s): Integration of Explanatory and Aesthetic Functions. With advancements in printing technology (such as color printing and offset lithography), the artistic scope of illustration expanded. Concurrently, increasing societal complexity (including two world wars and economic crises) heightened audience demand for understanding complex news, prompting illustrations to assume the role of "interpreter." For example, the 1930s illustrations in *Life* magazine depicting "Living Conditions During the Great Depression" used contrast (scenes of the wealthy versus the poor) to visually explain the economic crisis's impact. Their realistic style and vivid colors also held significant aesthetic value. During this period, illustrators began developing distinctive personal styles. Norman Rockwell's illustrations, for instance, became iconic symbols of American culture, renowned for their "everyday perspective and warm color palette."

Phase Three (1980s to Present): Critical and Cultural Functions Emerge Prominently. Influenced by postmodernist thought, illustration transcended its role as mere "documentation and interpretation," increasingly employing exaggeration, metaphor, and satire to critique societal issues. For instance, following the 2008 financial crisis, *The New Yorker* magazine published an illustration titled "Wall Street Greed," depicting financial professionals as "money-devouring monsters," sparking public debate on financial regulation. Similarly, *Southern Weekly's* 2020 illustration "People's Livelihood Under the Pandemic" contrasted "deserted streets with lights in windows," conveying both the pandemic's severity and the cultural message of "unity in adversity." During this phase, traditional news illustrations became "visual carriers of public discourse," with their cultural and social value increasingly prominent.

AIGC represents a stage in the evolution of artificial intelligence within the internet era. Its development relies on AI technology, forming a novel content production paradigm. While facing numerous technical barriers, the AIGC model is progressively becoming more intelligent and diversified, exerting an increasingly powerful influence on content production across multiple fields, including journalism. Through continuous iterations of image generation models like Midjourney and Stable Diffusion, AIGC technology has demonstrated capabilities extending from basic image generation to creating high-quality, stylistically diverse illustrations. These technological advancements not only expand the application boundaries of artificial intelligence but also drive profound transformations in the media industry's production models and dissemination methods.

Current academic research on AIGC technology primarily focuses on model principles and performance optimization. In their study "Comparative Research on Artificial Intelligence and Human Creativity" (2023), Li Yuhui and Pang Juei traced the developmental trajectory of AIGC image generation models: From early GAN (Generative Adversarial Network) models (2014), to VAE (Variational Autoencoder) models (2016), and finally to the current mainstream Diffusion models (2020). Among these, Diffusion models generate images through "stepwise denoising," significantly surpassing previous models in detail accuracy and stylistic diversity. Taking Stable Diffusion as an example, it enables real-time conversion from "text prompt → feature vector → visual image," achieving over tenfold faster generation speeds compared to GAN models. Zhou Hong and Xiong Qingxia (2024) note in "Opportunities, Concerns, and Responses: AIGC Empowering Media Production" that AIGC's core strengths lie in its "data processing capabilities" and "style simulation capabilities." In news practice applications, AIGC's typical uses are primarily reflected in the following areas. I. Empowering News Production Workflows: AIGC demonstrates significant advantages in news topic selection, material organization, manuscript writing, and data journalism. AIGC tools can gather materials from across the web to provide journalists and editors with real-time hot topics and information. By analyzing relevant story angles and projecting event trajectories, they offer valuable insights for new media editors' topic planning, helping journalists organize news leads and draft content within tight deadlines. Furthermore, in data journalism, AIGC integrates natural language with data visualization to automatically generate intuitive charts and explanatory illustrations. This makes complex information more accessible to audiences, substantially enhancing the quality and efficiency of news production. II. Visual Design Innovation: The rise of text-to-image models has positioned AIGC as a key player in visual creation. Users can now input keywords and iteratively refine designs through repeated "card draws" to achieve ideal visual outcomes, substantially boosting communication efficiency and content expressiveness. III. Multimodal Integration and Immersive Communication: AIGC extends beyond text and image generation, demonstrating potential in voice, video, and interactive content to create immersive news experiences for broader audiences.

Moreover, research indicates that the vast majority of non-professionals can no longer distinguish between AI-generated works and human-created content. This demonstrates that AIGC technology has achieved visual quality on par with human-created works, making it a viable alternative. Through efficient human-machine collaboration, AIGC technology will drive the evolution of media formats from "converged media" to "intelligent media," ushering in a paradigm shift for journalism practices.

3 Characteristics and Advantages of AIGC in News Illustration

Compared to traditional illustration, AIGC's greatest strengths lie in efficiency, stylistic diversity, and cross-modal technological innovation. It possesses robust natural language organization and comprehension capabilities, enabling it to generate personalized images or textual content based on creator requirements. For instance, one can input a news article into ChatAI and instruct it to generate corresponding news illustrations. Big data assists creators in producing illustrations and sparking inspiration during content creation^[7]. Additionally, while engaging in machine dialogue, creators can expand their thinking and diverge their ideas, significantly boosting creative efficiency. These advantages not only meet the urgent demands of the news industry for timeliness and cost control but also open up broader development prospects for visual news communication.

3.1 High Efficiency and Low Cost

In traditional news workflows, the editing and design of text and illustrations typically required first organizing relevant news materials, then communicating with graphic designers. The latter would then complete the visual presentation design through multiple stages including conceptualization, drafting, and revisions. This conventional approach was time-consuming and demanded significant labor costs. During major news coverage or breaking events, this "time-consuming" approach conflicts with the fast-paced logic of news dissemination. In contrast, new media professionals, aided by AIGC, can generate illustrations aligned with news themes within minutes or even seconds. These can be further refined and enhanced, significantly shortening production cycles while also stimulating creativity and inspiration among new media workers. For instance, during the 2023 Two Sessions coverage by People's Daily, the media outlet pioneered the use of AI-generated news illustrations as supplementary visuals for layouts. Additionally, People's Daily Online's "Illustrating the Two Sessions" column adopted a hybrid approach combining AI-generated art, hand-drawn creative typography, and live-action video. This method analyzed word frequency and compiled keywords from hot topics like the Government Work Report, producing visual works that markedly enhanced the efficiency of news product creation and distribution. Simultaneously, the low cost of AIGC opens new possibilities for more media organizations. For small and medium-sized news outlets, hiring professional illustrators represents a significant expense. AIGC tools reduce labor and time costs to a certain extent, enabling optimized resource utilization.

3.2 Stylistic Diversity

As a visual art form, news illustration serves not only to supplement, interpret, and embellish textual content but also functions as a visual expression with aesthetic value and cultural significance. When audiences read news, different illustration styles often evoke distinct psychological responses and communication effects. However, traditional illustrators typically adhere to fixed styles, making it challenging to meet diverse demands within short timeframes. AIGC technology significantly addresses this limitation. For instance, Midjourney excels at generating atmospheric images ideal for creating ethereal skies or serene scenes, while Stable Diffusion boasts an extensive model library encompassing diverse artistic styles. It can fulfill nearly all illustration design requirements, offering superior structural stability and detail control. Furthermore, AIGC can simulate different artistic styles—such as ink wash, comics, realism, or futuristic aesthetics—based on news content and audience preferences. This stylistic diversity not only enriches the visual presentation of news products, delivering stronger visual impact and reading experiences to audiences, but also significantly enhances the compatibility between illustrations and news content. This, in turn, boosts the dissemination efficiency of news content.

3.3 Technological Innovation

The most prominent advantage of AIGC in empowering news illustration lies in technological innovation. Through cross-modal "text-to-image" generation, AIGC enables automated conversion from natural language to visual symbols, expanding the boundaries of illustrative expression. For instance, in data journalism, AI-generated illustrations not only possess aesthetic value but also serve as interpretive tools, presenting complex data and abstract concepts to audiences in more accessible ways. More significantly, the rapid advancement of new communication technologies—such as natural language processing, visual image processing, virtual reality (VR), and augmented reality (AR)—combined with artificial intelligence, has introduced novel experiential models to news dissemination. This not only enhances audience engagement and immersion in news consumption but also evolves news communication from mere "information transmission" to "co-creation of experiences." Furthermore, AIGC introduces sustainable iteration to news illustration. Unlike traditional illustrations requiring stroke-by-stroke revisions, AI-generated works can be rapidly updated through prompt adjustments. This capability ensures consistent style and content continuity across different stages and versions of news products, offering greater flexibility for long-term reporting and special feature planning.

4 Limitations and Challenges of AIGC in News Illustration

While AIGC significantly enhances production efficiency, reduces costs, and expands stylistic expression in news illustration, its application still faces multiple limitations and challenges. Regarding authenticity and journalistic ethics, truthfulness is the core value of news. AIGC relies on big data probability calculations to generate illustrations, potentially

leading to factual errors or even fabrication. Some AI systems exhibit “learned deception” to “manipulate” others, posing significant cybersecurity risks. Regarding copyright and intellectual property, AIGC training requires vast datasets. The unauthorized use of existing artworks and cultural resources for training creates copyright gray areas. Without timely refinement of relevant laws, regulations, and algorithmic frameworks, this will become an institutional barrier to AIGC's long-term development in journalism. Regarding homogenization, AIGC's purported “diversity” stems from similar training models constrained by algorithmic logic, leading to aesthetically convergent outputs. As more news organizations adopt these tools, audiences may experience visual fatigue, diminishing the appeal of news dissemination. Consequently, human intervention remains essential to infuse personalized and culturally relevant elements during post-production. Even as AI-generated content (AIGC), exemplified by ChatGPT, profoundly transforms production practices in the new media industry, traditional news illustration retains irreplaceable unique value. This value manifests across multiple dimensions—artistic, cultural, and social. In terms of artistic originality and distinctive style, traditional news illustrations distill the essence of news stories and convey them visually. Creators infuse their personal artistic style and emotional qualities into brushwork, composition, and color palette. This aligns with Walter Benjamin's “aura” theory, which posits that artworks derive value from their unique creative process and historical traces. While AIGC can mimic various styles, it lacks the subjectivity and emotional depth inherent in human creation. In terms of in-depth interpretation and critical expression, Traditional news illustrations serve as vehicles for creators' ideological expression. Artists can deeply interpret news events by integrating social experience, cultural context, and value judgments. Satirical cartoons, for instance, use exaggeration and symbolism to expose social contradictions and provoke public reflection, functioning as vital forms of public oversight. AIGC, however, operates within constrained generation logic, lacking authentic social experience and value stances. Its “criticality” often relies on prompt words rather than deep contemplation. Regarding cultural identity and localization advantages, traditional illustrators integrate regional cultures and ethnic characteristics into their work, enabling news reporting to fulfill both informational dissemination and cultural representation functions. For instance, the distinctive illustrations in China Daily (Overseas Edition) attract international readers, whereas AIGC training data predominantly originates from Western contexts with insufficient Chinese and African American samples. Consequently, generated content exhibits biases and limitations in cultural nuances and symbolic expression. This positions traditional news illustrations as superior for localized expression and cultural dissemination, enhancing local audiences' cultural identity while advancing national image and international soft power.

Table 1 Comparison of AIGC and Traditional News Illustrations

Comparison Dimensions	AIGC Empowers News Illustration	Traditional News Illustration	Summary of Core Differences
Production Logic	Algorithm-Driven: Text Parsing → Style Matching → Draft Generation, Automated Workflow, Short Cycle Time (Minute-Level), Low Cost (0.5-2 RMB per Page)	Artificial-driven: Creative conception → Material collection → Hand-drawn illustration → Revision and refinement. The process is linear, with extended timelines (hours to days) and high costs (500-2000 RMB per piece).	AIGC: Efficiency-first, ideal for rapid production; Traditional model: Quality-first, suited for meticulous creation.
Artistic Expression	Style Diversity: Covers over 200 styles, but prone to homogenization; Artistic Value: Lacks artistic flair, with shallow emotional expression; Originality: Relies heavily on training data, resulting in low originality.	Unique Style: Consistent personal style with limited diversity; Artistic Value: Possesses artistic charm with profound emotional expression; Originality: Handcrafted with high originality.	AIGC: Strong in style variety, weak in value depth; Traditional model: Strong in value depth, weak in style variety.
Communicating function	Suitable scenarios: fragmented reading, breaking news, multimodal communication; Communication effectiveness: quick attention-grabbing, high interactivity, but weak in-depth guidance. Authenticity Risk: Probabilistic generation prone to factual errors;	Suitable Scenarios: In-depth reporting, cultural coverage, public opinion guidance Communication Effect: Slow to capture attention but highly effective at deep guidance, with significant influence on public discourse	AIGC: Suited for fast-paced scenarios, excels in real-time dissemination; Traditional model: Suited for in-depth scenarios, excels in public opinion guidance.
Ethical risks	Copyright Risk: Training data infringement with ambiguous attribution; Aesthetic Risk: Homogenization leading to fatigue. Cultural Expression: Primarily	Efficiency risk: Long production cycles make it difficult to meet immediate demands; Cost risk: High labor costs place a heavy burden on small and medium-sized media outlets.	AIGC: Risks are concentrated in ethics and quality; Traditional models: Risks are concentrated in efficiency and cost.
Cultural Value	global symbols, with weak localized expression; Cultural Transmission: Relies on textual instructions, struggling to convey cultural essence.	Cultural Expression: Precise localization of symbols, prominent national cultural elements; Cultural Heritage: Integrated into the creative process, conveying cultural significance.	AIGC: Weak in cultural depth, suitable for global dissemination; Traditional model: Strong in cultural depth, suitable for localized preservation.

It is evident that AIGC and traditional illustration are not entirely mutually exclusive but rather complementary. Future development may lean toward “human-machine collaboration,” where generative AI handles preliminary sketches and drafts for news illustrations, followed by illustrators refining the work to infuse creative and cultural value. This production model not only enhances efficiency and timeliness in news illustration but also ensures the preservation of artistic uniqueness and cultural expression.

5 Conclusion and Outlook

AIGC-powered news illustration represents a significant trend in media's intelligent transformation. It demonstrates notable advantages in production efficiency, cost control, and stylistic diversity, aligning with today's fast-paced societal context and showcasing substantial growth potential. However, risks persist regarding authenticity, copyright, and aesthetic standards. In contrast, traditional news illustration retains irreplaceable value through its originality, critical perspective, and cultural depth. Therefore, future news illustration should evolve toward a hybrid model of “AI-assisted + human-led” to balance efficiency and artistic value. Media organizations should promptly establish and refine usage guidelines and ethical frameworks for AIGC illustrations, promoting industry standardization and healthy development. As technology iterates and societal adaptation deepens, the collaborative synergy between AIGC and human illustrators will propel news illustration into a new era of greater efficiency, diversity, and inclusivity.

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