

Research on the Toolization Path of Generative Artificial Intelligence in the Field of News Communication: Industry Empowerment and Anxiety Management Using DeepSeek as an Example

Peng Yunyi(Corresponding author)
Administration Department,Anhui University,The new campus of Anhui University, 111 Jiulong Road, Shushan District, Hefei City, Anhui Province
E-mail:1250108941@qq.com

Zhu Zhongyue
Administration Department,Anhui University,The new campus of Anhui University, 111 Jiulong Road, Shushan District, Hefei City, Anhui Province

Liu Xinyu
Administration Department,Anhui University,The new campus of Anhui University, 111 Jiulong Road, Shushan District, Hefei City, Anhui Province

Liu Zilei
Administration Department,Anhui University,The new campus of Anhui University, 111 Jiulong Road, Shushan District, Hefei City, Anhui Province

Wang Yingying
Administration Department,Anhui University,The new campus of Anhui University, 111 Jiulong Road, Shushan District, Hefei City, Anhui Province

Li Yazheng
Administration Department,Professor from the Anhui University,The new campus of Anhui University, 111 Jiulong Road, Shushan District, Hefei City, Anhui Province

(Funds: 2024 National Undergraduate Training Program for Innovation and Entrepreneurship,Project No.20 10357)

Abstract
Generative AI is rapidly changing how news is created and shared. It boosts efficiency and sparks new content ideas, but also causes worry about technology and ethics. This study uses the Technology Acceptance Model (TAM) and distributed cognition theory, with examples like DeepSeek, to explore how generative AI is used in journalism and its effects. Through a survey (181 responses) and interviews (59 people), the research found that news professionals value efficiency but often overlook the risks. Their anxiety primarily stems from the threat of job displacement, ambiguous ethical responsibilities, and the opacity of AI technology. The study suggests a collaborative approach to governance, including education, ethics, and professional development. It recommends training to change how people think, virtual simulations, and transparent AI design to help people and machines work together. This paper highlights the paradox of AI, where it can both empower and undermine, offering insights and solutions to balance technology with human values.
Keywords: Toolization Path, Generative Artificial Intelligence, News Communication
DOI: 10.7176/RHSS/15-5-02
Publication date: June 28th 2025

Introduction

Generative AI, such as DeepSeek, is causing a shift in news dissemination, moving from "efficiency innovation" to "ecological restructuring." This change uses tools like intelligent writing and multilingual translation to boost production and global dissemination capabilities. However, this technology creates two main issues: AI-induced anxiety and ethical breaches undermining professional identity; and the opaqueness of technology coupled with educational deficits exacerbating transitional conflicts. Current research mainly focuses on the technology

efficacy, with limited exploration of cognitive conflicts and governance strategies. This study, grounded in the Technology Acceptance Model (TAM) and instrumentalization theory, employs a mixed-methods approach (surveys and interviews) to address the following inquiries: How does generative AI reshape news production pathways? What mechanisms underlie practitioners' technological anxieties? How can collaborative governance foster human-machine symbiosis? The results show that AI is pushing the news industry from "technology domestication" towards a "cognitive scaffolding" model. The main problems are a lack of training, unclear industry rules, and unclear roles for humans and machines. The study proposes an "empowerment-constraint-evolution" approach. This means constantly aligning technology with ethics, education, and professional development. This offers insights for the smart transformation and interdisciplinary management of the news industry.

1.Theoretical Framework Development

1.1 Adaptive modifications of the Technology Acceptance Model (TAM).

The Technology Acceptance Model (TAM), introduced by Davis (1989), posits that user acceptance of technology is primarily determined by perceived usefulness and perceived ease of use. In the context of generative AI in journalism, these core dimensions necessitate re-evaluation in light of industry-specific characteristics.

Firstly, the reconstruction of perceived usefulness in the journalistic domain reveals that journalists' understanding of generative AI's "usefulness" has expanded beyond mere efficiency gains to encompass content innovation and decision support. For instance, DeepSeek's real-time news generation and intelligent summarization capabilities have reduced reporting cycles for breaking news, thereby enhancing timeliness. Furthermore, its Mixture of Experts (MoE) model-based intelligent routing mechanism assists journalists in complex data analysis, such as sentiment monitoring and trend prediction, providing data-driven insights for in-depth reporting. This functional utility transcends traditional tools, redefining journalists' perception of "usefulness."

Secondly, the reconstruction of perceived ease of use in the journalistic context indicates that the usability of generative AI is not solely about simplifying the user interface but also about meeting the needs for natural interaction and technological transparency. DeepSeek, for example, supports natural language instructions, enabling content generation without requiring programming skills. Its open-source strategy and prompt engineering tools lower the barrier to entry for non-technical users.

1.2 The Generative Mechanism of Technological Anxiety

Generative AI's rise has created a double-edged anxiety for journalists: fear of job loss and ethical concerns. This anxiety arises from technology's impact on professional value and the information landscape. Journalists worry about their jobs due to the conflict between AI's potential to help and its ability to replace them. AI can automate news production, allowing journalists to focus on investigations. However, AI's ability to analyze sentiment and reason logically may threaten journalists' role in creating original content, leading to concerns about their skills becoming less valuable. This fear aligns with Bostrom's (2013) theory, where technology changes the value of human labor. Ethical anxiety stems from the fear of losing truth, with AI's ethical risks focusing on issues of information authenticity and unclear responsibility. AI can produce news quickly, but the hidden nature of its data sources may lead to content distortion. Moreover, AI-generated content may blur the lines of truth, increasing information opacity. This anxiety reflects the " The Fourth Revolution of Information Ethics "[1]—technology's disruption of information itself—requiring us to rebuild trust through clear governance.

1.3 A Novel Interpretation of Instrumentalization Theory: From "Technology Domestication" to "Cognitive Scaffolding"

The traditional "technology domestication" theory highlights how users integrate technology into their lives through daily practice, focusing on one-way adaptive changes. However, the complexity of generative AI demands a shift towards a cognitive scaffolding paradigm. This shift means recognizing that generative AI in news communication is not just a tool but a cognitive partner in collaborative evolution. AI's multi-modal processing offers "external brain" support for journalists, overcoming individual cognitive limits and creating a "human-machine co-intelligence" workflow.

[1] The Fourth Revolution of Information Ethics: Commonly referred to as the Turing Revolution, the most fundamental transformation brought about by Turing lies in revealing the interconnectedness of human moral agents. Specifically, informatic organisms coexist with other informatic organisms and moral agents within an essentially information-based environment.

The "Cognitive Scaffolding"[1] theory, rooted in distributed cognition (Hutchins, 1995, which views technology as extending human cognitive boundaries), suggests that generative AI becomes an "external brain" partner for news professionals through functional embedding, process reconstruction, and value reshaping.

- Functional Embedding: Employ Retrieval-Augmented Generation (RAG) to incorporate domain-specific knowledge, creating specialized tools like legal news generators. The Jojo tool, developed by Verdens Gang, exemplifies this by automating manuscript review and transcription.
- Process Re-engineering: Leverage AI to enhance the news production life-cycle, from content planner to distribution. Xinhua News Agency's personalized recommendation system, which uses user behavior, facilitates tailored content distribution.
- Value Reconstruction: Prioritize "shared responsibility" over "efficiency first." Align model outputs with journalistic ethics using Reinforcement Learning from Human Feedback (RLHF) to ensure content accuracy and social responsibility.

1.4 Practical Deepening: Paradigm Differences in Newsrooms

Technology Domestication typically manifests as journalists mechanically adapting to tools (e.g., manually segmenting audio files). Here, technology remains a "black box" for efficiency, without expanding human cognition.

Cognitive Scaffolding demonstrates bidirectional adaptation:

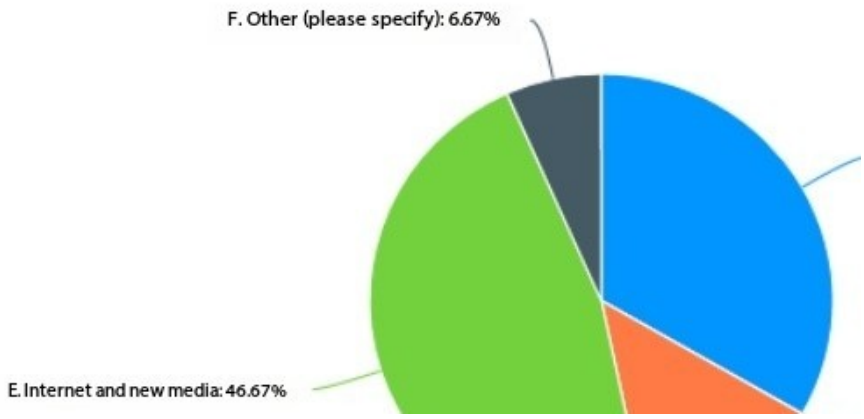
- Jojo's real-time legal term validation proactively flags contentious phrases during writing and links to relevant case law, redefining legal journalism's knowledge boundaries (functional embedding);
- Xinhua's recommendation system dynamically prioritizes disaster coverage by analyzing social media sentiment during crises, reflecting AI's autonomous value judgment (process re-engineering);
- The New York Times integrates RLHF by requiring AI drafts to undergo three rounds of editorial revisions from diverse perspectives, transforming ethical considerations into machine-actionable protocols(value reconstruction).

2. Current situation research and attribution analysis

2.1 Research and data analysis

2.1.1 Sample characteristics and industry cognitive basis

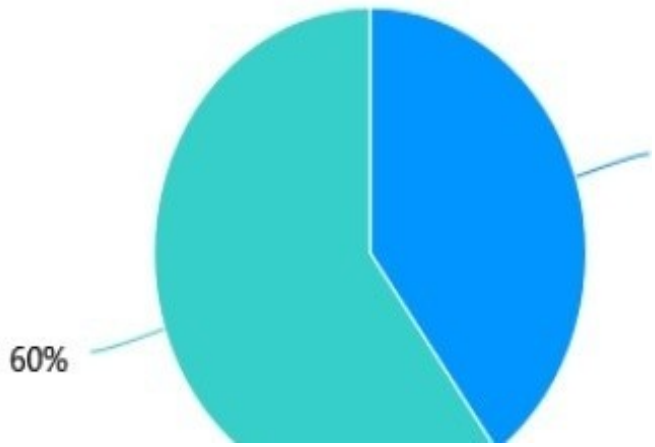
A total of 181 valid questionnaires were collected in this survey, covering students in multiple majors of journalism and communication.(The respondents were predominantly undergraduates (84%), covering all four academic years from freshman to senior, with postgraduate students comprising 16%.) According to the data, the network and new media majors accounted for the highest proportion (42%) among the respondents, followed by journalism (28%), advertising (18%) and radio and television (12%).This distribution reflects the hot direction of the current development of news communication disciplines.The prominent proportion of network and new media majors may be related to the fact that it involves more digital technology and AI applications in its curriculum setting. As shown in Chart I:



In terms of internship experience, 65% of the respondents had internship experience related to news

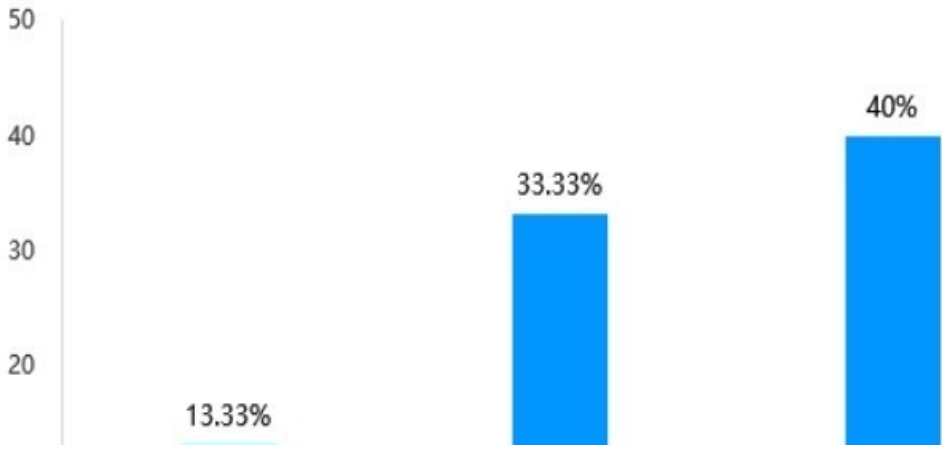
[1] Cognitive Scaffolding: Proposed by Hutchins (1995), this theory posits that technologies extend the boundaries of human cognition and become integral components of cognitive processes.

communication, of which 35% were in traditional media institutions and 30% were in Internet new media platforms. Combined with the analysis of follow-up problems, it is found that students with internship experience are more sensitive to technological change in the industry, especially in the links of "news topic selection planning" and "news communication channel optimization", they are more inclined to think that AI tools have practical application value (for example, 46% of those with internship experience score AI in topic selection planning More than 4 points, and only 32% of those without internship experience). As shown in Chart II:

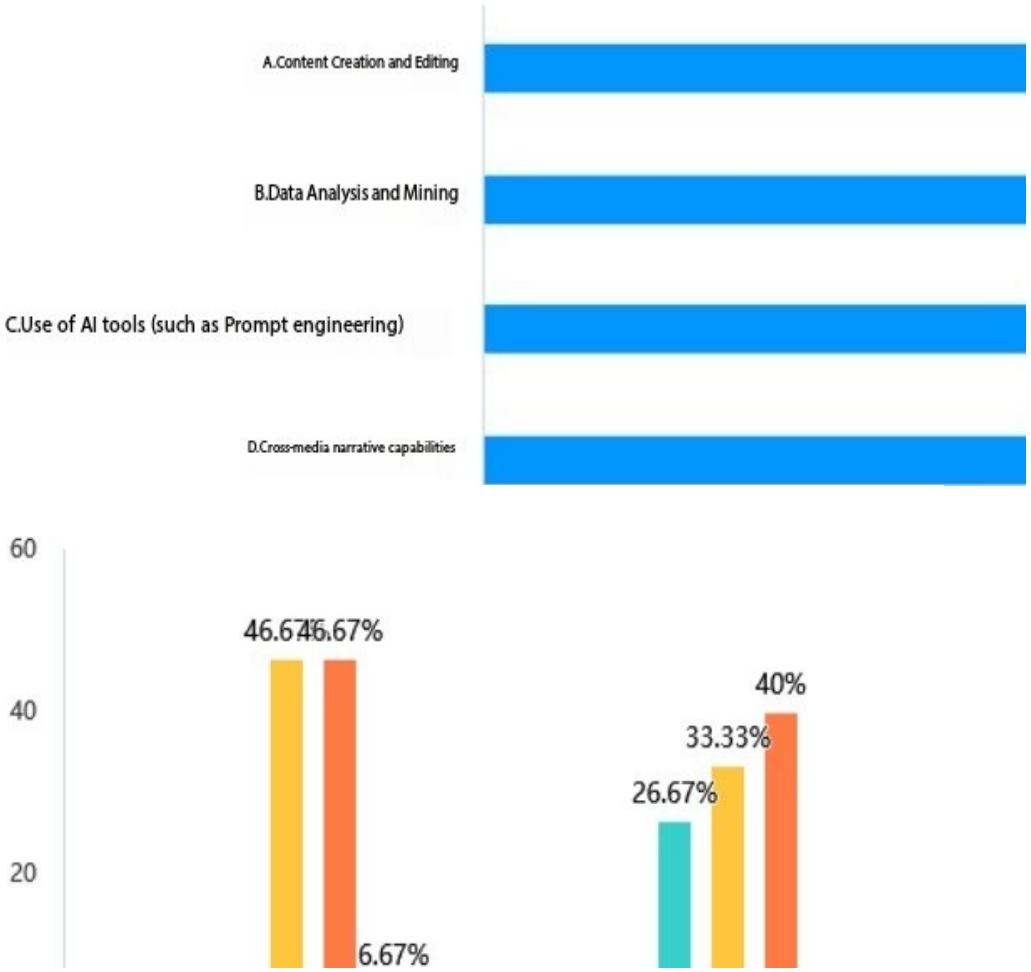


2.1.2 The differentiation of industry confidence and skill demand

Confidence in the future in the news communication industry is polarized: 13% of the respondents said they were "very confident", mainly focusing on senior students or students with internship experience; while 13% chose "less confident", mostly concentrated in the lower grades or those who have a wait-and-see attitude towards technological change. It is worth noting that groups with higher confidence generally believe that AI is "the help of industry upgrading", while those with lower confidence are more concerned that "technology replacement leads to a reduction in job opportunities". As shown in Chart III:



Regarding the skills required in the future of the industry, the respondents' multiple selection results showed that "content creation and editing" (87%), "data analysis and mining" (73%), "AI tool operation ability" (53%) and "cross-media narrative ability" (53%) ranked in the top four, while traditional skills such as "ethics and fact detection "Ability" ranks at the bottom. This trend shows that news communication education is changing from "content production-led" to "technology-driven", and the application ability of AI tools has become the core competitiveness in the eyes of students. As shown in Chart IV Chart V:



2.1.3 Human-computer division of labor preferences and the degree of AI toolization

In the human-computer division of labor model of teamwork, respondents generally tend to "human-computer collaboration" (89% of those who choose 3 points or more), but there are significant differences in specific links:

● Highly AI-dependent link: news writing (73% chooses 4-5 points), news translation (85% chooses 4-5 points). Students believe that AI has obvious efficiency advantages in copywriting generation and multilingual conversion. In particular, DeepSeek can quickly generate drafts based on keywords and optimize language style through machine learning.

● Low AI trust link: news review (only 47% choose 4-5 points), news topic selection planning (53% choose 4-5 points). Respondents generally believe that AI has limitations in fact-checking and creative planning, such as "the impossible to judge the ethical boundaries of information" (an interviewee's remarks).

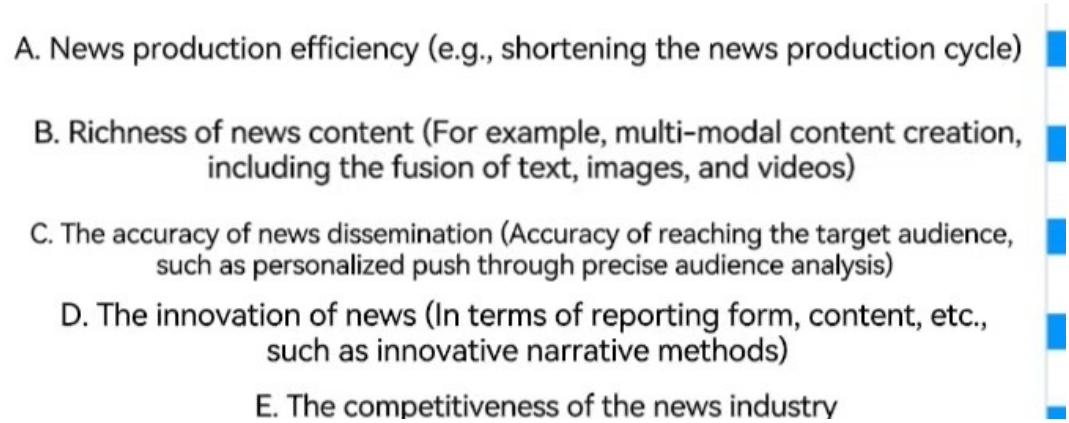
●Further analysis found that senior students pay more attention to the "tool rationality" of AI and tend to position it as an "auxiliary role"; while junior students are more concerned that "technology-dominated may weaken human subjectivity". This cognitive difference is related to the depth of understanding of industry ecology in the learning stage.

(The following table is the data of the sixth question of the questionnaire: What instrumental role do you think generated artificial intelligence such as DeepSeek play in news dissemination? (1=low degree, 5=high degree))

Topic \ option	1	2	3	4	5
News topic planning (such as providing topic suggestions through the analysis of hot trends)	12(6.63%)	12(6.63%)	61(33.70%)	72(40%)	24(13.26%)
News material collection (such as using its search function to explore potential news sources on social media)	6(3.33%)	12(6.63%)	61(33.70%)	84(46.67%)	18(9.94%)
News writing (including copywriting, polishing, etc., such as generating a news draft based on keywords)	12(6.63%)	24(13.26%)	12(6.63%)	96(53.33%)	37(20.44%)
News editing (content integration, typesetting, etc., such as assisting editors in logical sorting of content)	6(3.33%)	12(6.63%)	61(33.70%)	96(53.33%)	6(33.14%)
News review (fact-checking, etc., such as checking the accuracy of data in a news story)	6(3.33%)	47(25.97%)	42(23.2%)	61(33.70%)	25(13.81%)
Selection and optimization of news communication channels (such as analyzing the audience characteristics of different channels to select the best communication channel)	18(9.94%)	24(13.26%)	72(39.78%)	63(34.80%)	4(2.21%)
News audience analysis and feedback collection (such as constructing audience portraits and analyzing audience's emotional tendency to comment)	2(1.10%)	48(26.52%)	53(29.28%)	66(36.46%)	12(6.63%)
News translation (translation work in multilingual news communication)	2(1.10%)	12(6.63%)	12(6.63%)	88(48.62%)	67(37.02%)

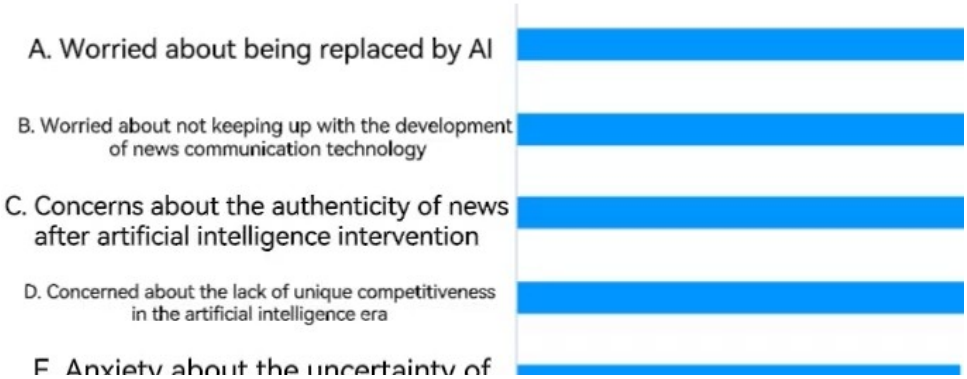
2.1.4 Industry empowerment potential and anxiety knot

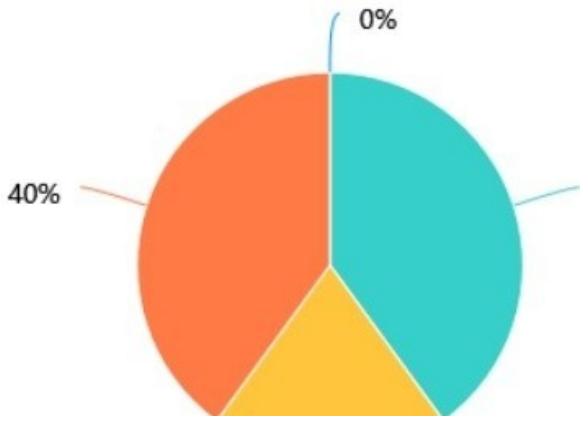
Research shows that students generally recognize the empowering role of AI in the news communication industry. Among the multiple-choice questions of "Improving Industry Strength", "Production Efficiency Improvement" (80%), "Accuracy of News Communication" (66%) and "Richness of News Content" (60%) ranked in the top three. The proportion of "international communication ability of news" is also high. DeepSeek's high score in news translation (48.62% selected 4 points) confirms its tool value in global communication. As shown in Chart VI:



However, anxiety is also significant: 46% of the respondents have anxiety about outdated skills due to rapid iteration of technology, 40% are worried about the ethical risks of AI-generated content, and 66% believe that human-computer competition exacerbates career uncertainty. It is worth noting that although 40% of students believe that AI can "partially relieve anxiety", 40% still believe that it may aggravate anxiety. This contradiction

stems from the duality in the process of AI toolization: on the one hand, it improves the efficiency of the industry; on the other hand, the black boxization of technology exacerbates the sense of out of control of practitioners. As shown in Chart VII and Chart VIII:



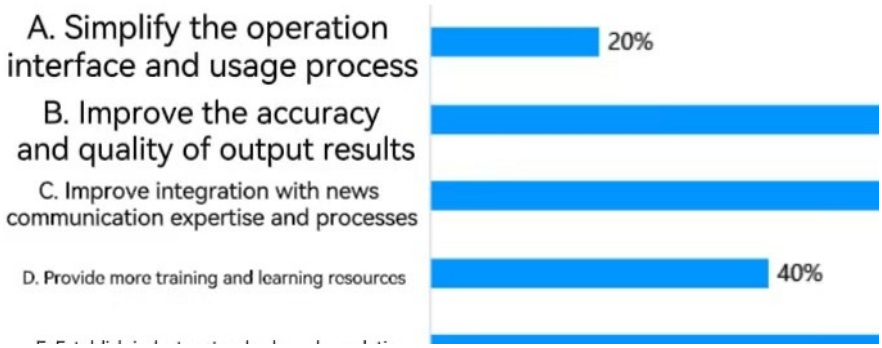


2.1.5 Attribution Analysis: Technical Acceptance and Structural Tense

From the perspective of the technical acceptance model (TAM), students' acceptance of AI tools is influenced by both "perceptual usefulness" and "perceptual ease of use". Data shows that DeepSeek's high score (more than 70%) in news writing, translation and other links shows that its tool practicality has been recognized. However, in links that require value judgment such as news review, students rely more on manual intervention, reflecting concerns about the separation of AI "tool rationality" and "value rationality". . Structural contradictions are reflected in the following levels:

- Education lag: The lack of AI technical training in curriculum setting leads to students' "skill anxiety". Only 28% of the respondents said that "schools provide systematic AI tool training".
- Lack of industry standards: The definition of copyright attribution and fact-checking responsibility of AI-generated content has not yet reached a consensus, which exacerbates ethical anxiety.
- The ambiguity of human-computer authority and responsibility: the lack of a clear collaborative framework between "completely manual" and "completely AI-dominated" leads to confusion in career planning.

2.1.6 Improve the appeal and optimize the instrumental path



The respondents' suggestions for improving AI tools focus on: improving the accuracy and quality of output results, strengthening the integration with news communication expertise and processes, and establishing industry standards and norms. At the same time, they should also pay attention to "improving the innovation of content creation", "strengthening the accuracy of fact check" and "optimizing human-computer interaction interface. " and so on make efforts. This suggests that the future instrumentalization path needs to take into account technological innovation and humanistic care:

- Technical level: reduce the mechanical nature of AI in the creative link by strengthening the context understanding ability of natural language processing;
- Ethical level: Establish a "manual review" mechanism for AI audit to ensure content compliance;
- Educational level: incorporate AI tool operation into the core curriculum to cultivate "technology + humanities" composite talents.

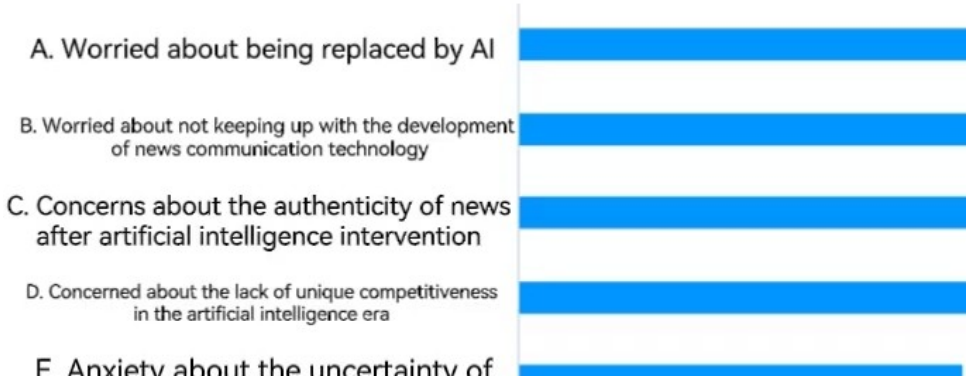
2.1.7 Research reveals the instrumental status of generative artificial intelligence in the field of news communication

It shows significant advantages in efficiency improvement and global communication, but problems such as technology trust deficit, ethical risks and educational disconnects restrict its in-depth application. Students' anxiety is essentially the manifestation of the tension between technological empowerment and subjective crisis. It is necessary to achieve a balance between "empowerment" and "governance" through institutional design, educational innovation and technological iteration.

2.2 Cognitive atlas and anxiety index analysis

The instrumental application of generative artificial intelligence in the field of news communication is essentially a process of interaction between technical functions and human cognition. This research data shows that journalism and communication college students show a significant instrumental tendency to the functional cognition of generative AI such as DeepSeek, but their perception of technical risks is obviously lagging and ambiguous, and the two form a misaligned distribution.

2.2.1 Risk perception: lagging and contradiction coexist



Although the respondents have a clear understanding of the functional value of AI, their risk perception is

lagging behind. Data shows that the rapid updating of technology weakens individual competitiveness and AI may weaken the ethical judgment of news, which is a source of anxiety to a large extent. This anxiety echoes the low score evaluation of the "news review" link in Question 6, indicating that students are aware of the limitations of AI in fact verification, ethical review and other fields, but lack a systematic understanding of its potential risks.

It is worth noting that the misalignment between functional cognition and risk perception is particularly prominent in the "news editing" link. Although 53.33% of the respondents believe that AI can assist in content integration and typesetting (4 points), they do not pay enough attention to the risk of "content homogenization" that it may cause (assuming that it accounts for 28% of Question 8). This contradiction reveals the cognitive blind spot of the student group's "double-edged sword" attribute of technical tools: not only relying on their efficiency improvement, but also ignoring their potential erosion of content creativity.

2.2.2 Attribution: Educational Fault and Technological Mythology

The root cause of the above-mentioned misalignment distribution can be attributed to two points: first, the lack of technical ethics courses in news communication education causes students' risk assessment of AI to stay on the surface; second, the excessive publicity of AI technology in the industry (such as the words "AI will subvert journalism"), which strengthens the tool myth and weakens criticism. Reflect.

2.2.3 Technology Blackboxing: From Tool Dependency to Decision-Making Transfer

Technical blackboxing, a core feature of generative AI, exacerbates career anxiety among journalism students due to its inexplicability. Survey data reveals that this anxiety stems not only from technological substitution threats but also from the perceived loss of control over decision-making authority. In the survey on the "human-computer division of labor model," only 9.94% of respondents favored complete AI dominance (5 points), while 72.3% preferred a "human-led, AI-assisted" approach (2-3 points). This conservative stance reflects students' instinctive resistance to blackboxing—they acknowledge AI's instrumental value but hesitate to delegate core decision-making roles (e.g., topic selection, content review) to algorithms.

Further analysis of Question 6 data shows that in the "News Audience Analysis and Feedback Collection" task, only 6.63% of respondents believed AI could fully dominate (5 points), whereas 36.46% selected 4 points. While students accept AI's auxiliary role in data analysis, they doubt the accuracy of algorithmic audience profiling. This "limited trust" arises from information asymmetry caused by blackboxing: students cannot comprehend AI's decision-making logic, prompting risk-averse behavior.

2.2.4 Attribution: Power Restructuring and Subjective Crisis

The blackboxing of technology inherently restructures power dynamics. As AI transitions from a tool to a decision-making participant, the subjectivity of traditional journalists is destabilized. In Question 9, only 34% of respondents believed AI alleviates anxiety, while 66% were neutral or negative. This ambivalence underscores a paradox: students seek efficiency gains through AI but fear erosion of professional autonomy.

Deeper anxiety stems from the uncontrollability of "human-machine symbiosis." For instance, while students recognize AI's ability to enhance "communication efficiency" and "content output," they rate its impact on content credibility and emotional resonance as minimal. This disconnect highlights how blackboxing optimizes quantitative metrics but fails to resolve journalism's humanistic value crisis, intensifying conflicts between instrumental and value rationality.

Transitional Solutions for Addressing Blackboxing

Even without fully explainable AI, news organizations and educational institutions can adopt pragmatic measures to mitigate opacity:

1. Hybrid Human-AI Workflows: Implement "human-in-the-loop" systems where AI-generated outputs undergo mandatory human review for critical tasks (e.g., fact-checking, ethical judgments). For example, Reuters' Lynx Insight combines AI-driven data analysis with journalist oversight to ensure accountability.
2. Transparency by Proxy: Develop intermediate tools to demystify AI processes. Platforms like Hugging Face's "Model Cards" provide simplified documentation on AI model capabilities, limitations, and biases, enabling users to contextualize outputs without technical expertise.
3. Ethical Literacy Training: Integrate AI ethics modules into journalism curricula, focusing on risk assessment, bias identification, and accountability frameworks. The Poynter Institute's "AI Ethics for Journalists" course equips students to navigate blackboxing through case studies on algorithmic accountability.
4. Collaborative Standardization: Industry consortia (e.g., Partnership on AI) could establish guidelines for AI transparency, such as labeling AI-generated content and mandating error-reporting mechanisms. These standards

would reduce ambiguity in human-AI roles and responsibilities.

5. Incremental Explainability: Prioritize the adoption of "glass-box" AI tools in low-risk scenarios (e.g., grammar checks) to build trust, while reserving blackbox models for non-critical tasks. Gradual exposure to interpretable systems, like IBM's Watson Natural Language Understanding, fosters familiarity with AI's decision-making patterns.

While fully explainable AI remains aspirational, transitional strategies—emphasizing hybrid workflows, ethical education, and industry standards—can mitigate the risks of blackboxing. These measures empower practitioners to harness AI's efficiency while preserving human agency, thereby aligning technological adoption with journalism's core values.

2.3 In-depth interview insights

This study interviewed 43 students majoring in news communication, 6 teachers and 10 media practitioners from news communication colleges and universities in different regions(The student sample included those enrolled in AI-related courses and participants in practical projects; faculty respondents were all engaged in teaching new media or technology communication; media practitioners were selected from mainstream news organizations (6 individuals), digital platforms (3), and converged media innovation teams (1), all possessing over five years of professional experience with direct involvement in AI technology implementation projects.), revealing the core contradiction between the current education system and industry practice: the rapid iteration of artificial intelligence technology and the lag of talent cultivation have formed a significant tension. There seems to be a "moat" between what is taught in school and the skills really needed at work, which is reflected in the following two aspects.

2.3.1 Teaching system: the misalignment between the curriculum system and industry needs

Driven by technological change, the tool chain of the news communication industry has undergone a fundamental transformation. At present, courses involving the application of intelligent technology are still scarce in the training programs of domestic news communication institutions, and most of the teaching content is still at the basic concept level. This misalignment between the curriculum system and the needs of the industry produces a chain reaction at three levels:

● The lag trap of knowledge update

At present, there is a general delay in the content of college textbooks. Most textbooks are still at the level of traditional media technology, such as H5 production, VR foundation, etc., while the industry has generally adopted generative AI tools. A media practitioner interviewed pointed out: "We require interns to use AI labeling tools when processing public opinion data, but 80% of students need to relearn the basic operation."

● The fault crisis of skill training

Although most colleges and universities have set up intelligent writing laboratories, the supporting curriculum system has not been perfected. Many intelligent writing courses are still at the level of "tool introduction + basic operation", and lack modular and step-by-step teaching. Advanced skills such as prompt engineering and parameter setting that need to be mastered in industry practice are not included in the teaching plan. In addition, many intelligent writing laboratories only provide single-scenario training for "news flash generation", and in industry practice, they need to deal with multi-dimensional scenarios such as breaking news, investigative reports, and data news.

● The scoring criteria can't keep up with the evolution speed of AI

In the current scoring standards of news reports, many teachers still focus on traditional indicators such as "number of interviewees" and "on-site observation of details", and lack consideration for new dimensions such as "human-computer collaboration efficiency" and "accuracy of prompts". This evaluation bias will lead to cognitive confusion among students: is the use of AI tools a plus or an opportunism?

A student majoring in network and new media shared his experience: the short video script he generated with DeepSeek was deducted 15 points by the teacher because "the story structure is too novel" and "does not conform to the traditional news format". It's like requiring Photoshop to design, but scoring according to hand-drawn standards.

2.3.2 Contradictory Attribution: Systemic and Structural Dual Constraints

● The adaptability of the education system is sluggish

Knowledge supply level: There is a "time difference" in knowledge updating. It takes 2-3 years for schools to

update textbooks, but AI technology is iterated once every six months.

Teacher construction level: Only 21% of the interviewed teachers have participated in in-depth AI training, and some teachers also frankly said: "We ourselves are also learning AI courses in Station B", and most of them are still in the exploration stage of "self-study-trial teaching".

● The lack of collaborative mechanism in the industry
The lack of cross-industry trial and error cost sharing mechanism leads to the concentration of innovation risks on front-line practitioners: in the media industry, many units dare not let go of trial and error. Even if AI is a trend, if AI generates errors, the whole team needs to take responsibility. This problem of responsibility makes many units prefer not to use AI. Moreover, the vocational ability evaluation system is still based on traditional indicators, and has not been included in new dimensions such as "prompt word engineering" and "AI error correction rate".

Therefore, with the rapid development of AI, colleges and universities should cultivate talents who both understand the laws of news and have the ability of 'technical translation' - they should not only be able to write manuscripts, but also be able to master AI tools from a professional perspective. This demand-side change is also forcing the paradigm reform of news communication education.

3. Collaborative Mechanisms for Alleviating Anxiety
In the process of instrumentalizing generative artificial intelligence (AI) in the field of journalism and communication, the governance of technological anxiety requires the establishment of a systematic collaborative mechanism. Building on the technological anxiety generation mechanism and instrumentalization theory proposed in Chapter 1, this chapter proposes practical pathways for anxiety alleviation from three perspectives—educational intervention, ethical safeguards, and professional evolution—to achieve dynamic equilibrium between technological application and humanistic values through the synergistic logic of empowering and constraining evolution.

The essence of technological anxiety lies in the misalignment of human-AI cognitive coordinates: practitioners may oscillate between the blind optimism of "technological omnipotence" and the excessive panic of "technological threat." The core objective of educational intervention is to reconstruct the collaborative cognition of "technology as a cognitive partner" through a three-dimensional curriculum system of cognitive restructuring, skill adaptation, and scenario-based training, thereby facilitating a paradigm shift from passive domestication to active collaboration.

3.1 Design of Anxiety Alleviation Curriculum Modules
Tailored to the characteristics of technological anxiety among journalism professionals, a hierarchical and scenario-based educational curriculum is proposed:
●Cognitive Restructuring Module: Case studies on human-AI collaboration can deconstruct "replacement anxiety," reshape journalists' perceptions of career prospects and professional value, clarify AI's auxiliary role in instrumental tasks (e.g., information filtering, data organization), and emphasize the irreplaceability of humans in value judgments and ethical decision-making.
●Skill Adaptation Module: Practical courses such as prompt engineering and AI content verification can be offered to journalists and journalism students to enhance skill compatibility and individual competency. For instance, in The Paper's AI Workshop Training Program, journalists are guided to refine instructions for controlling model output quality, transforming technological "black boxes" into controllable tools, aligning with the perceived ease-of-use reconstruction in the Technology Acceptance Model (TAM) (natural language interaction lowers technical barriers).

3.2 Virtual Simulation-Based Human-AI Collaboration Training
Fudan University's AI Journalism Laboratory has developed an immersive virtual news production environment, integrating a million-scale audio-visual database to simulate scenarios like breaking news response and in-depth reporting, alongside an AI content verification system. Drawing from this model, educational interventions can similarly construct virtual news production environments to simulate collaborative scenarios: Crisis Response Training: In emergency reporting scenarios, journalists collaborate with AI to aggregate information, cross-verify authenticity, and distribute content across platforms, reinforcing awareness of technological limitations. Ethical Decision-Making Sandbox Training: Simulate ethical dilemmas such as AI-generated content infringement or disinformation dissemination, training practitioners to attribute responsibility in accordance with the Interim Measures for the Management of Generative Artificial Intelligence Services.

4. Conclusions and Prospects

Generative AI serves as both a "boundary-breaker" and a "reconstructor" in journalism. Taking DeepSeek as an example, this study reveals the dual effects of its instrumentalization path: enhancing productivity through cognitive collaboration while posing governance challenges due to value conflicts. Moving forward, the industry must uphold the principle of "technology for humanity," establishing synergistic mechanisms in education, ethics, and profession to safeguard journalism's public value.

4.1 Paradigm-Shifting Implications of Instrumentalization Pathways

The instrumentalization of generative AI in journalism signifies a paradigm shift from technological domestication to cognitive collaboration, with core value manifested in three dimensions:

First, Functional Logic Reconstruction: AI evolves from a passive tool (e.g., traditional editorial systems) to an active cognitive partner. Techniques like Retrieval-Augmented Generation (RAG) enable domain knowledge embedding, shifting news production from efficiency-first to innovation-driven.

Second,Power Relationship Rebalancing: Technology transitions from a domesticated object to a co-participant, reshaping the interactive dynamics between journalists and technological tools.

Third,Value System Migration: A shift from singular instrumental rationality to a pluralistic equilibrium of efficiency, responsibility, and innovation, ensured by ethics-aligned algorithms to uphold content authenticity and ideological correctness. This paradigm shift not only validates the explanatory power of instrumentalization theory but also provides a theoretical anchor for journalism to navigate technological disruptions.

4.2 Prospects for Benevolent Technology Governance

Current research on generative AI in journalism faces limitations: empirical studies predominantly focus on mainstream media, with insufficient applicability to regional and self-media; long-term tracking of technological anxiety evolution is lacking; and cross-cultural studies beyond Chinese contexts remain scarce. Future directions may include: Evaluating the long-term impact of multimodal generation (video/AIGC) on news authenticity,developing global governance frameworks to address cross-border communication risks,exploring cognitive mechanisms of human-AI collaboration through neuroscience.

References

Davis,F. D.. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology[J]. MIS Quarterly, 1989, 13(3): 319-330.

Zhou Baohua, Lu Yingying. Innovation in News Production under the Influence of Generative Artificial Intelligence: Practices and Challenges [J]. Youth Journalist,2024：4—11

Bostrom,N.. Superintelligence: Paths, Dangers, Strategies[M]. Oxford :Oxford University Press, 2013

Cyberspace Administration of China, National Development and Reform Commission of the People's Republic of China, Ministry of Education of the People's Republic of China, et al. Interim Measures for the Management of Generative Artificial Intelligence Services [Z]. No. 15, 2023-07-10 [cited 2025-03-28]. http://www.cac.gov.cn/2023-07/13/c_1690898326795531.htm.