

A study on the impact of generative AI news recommendations on media trust among Japan's younger generation

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Abstract. With the rapid development of generative artificial intelligence technology, the news media industry is undergoing profound changes. Personalized recommendation algorithms for AI-generated news anchors have gradually come into the public eye, posing new challenges to the traditional mechanisms of media trust. This study focuses on Japan's younger generation and explores the specific impact of generative AI news recommendations on their media trust. A mixed-methods research approach is adopted in this study. First, content analysis is conducted to examine the characteristics of AI-generated news samples on mainstream Japanese news platforms. Secondly, questionnaires are disseminated to individuals aged 18 to 30 among Japan's younger demographic to gather data on media consumption patterns and levels of trust. Ultimately, comprehensive interviews are performed with chosen participants to attain a more profound insight into their psychological processes. The research results indicate that although AI news has significant advantages in information delivery efficiency, it differs substantially from human anchors in terms of emotional resonance and credibility. In addition, algorithm recommendation transparency is identified as a key variable regulating media trust. This study provides empirical evidence on the reconstruction of media trust in the artificial intelligence era and offers relevant suggestions for journalistic ethics norms.

Keywords: generative artificial intelligence, AI news, media trust, transparency

1. Introduction

Against the backdrop of digitalization, generative artificial intelligence has penetrated all aspects of news communication. According to reports, many mainstream Japanese media outlets have begun adopting AI anchors and automated writing systems, marking a major transformation in news production models. However, technological intervention has also sparked widespread concerns about the "algorithmic black box" and "information cocoons", leading to a media trust crisis. Although the existing literature has thoroughly examined the impact of artificial intelligence on enhancing news production efficiency, empirical studies regarding trust in AI-generated news among Japan's youth in a particular cultural setting are limited. Japan's distinctive approach to merging technology with tradition renders this population an exemplary subject for examining trust in human-computer interaction. This study systematically analyzes the impact mechanism of

generative AI news recommendations on media trust among Japanese youth through a three-dimensional analytical framework of "technology-content-audience". By combining quantitative questionnaire surveys and qualitative interviews, this study not only reveals the current state of media trust but also explores potential paths to enhance acceptance of AI news. It has significant theoretical and practical implications for guiding the future construction of technological ethics in news media.

2. AI restructuring the news ecosystem and shifts in trust research

In the era of rapid advances in artificial intelligence, the field of news communication is undergoing unprecedented changes. The breakthrough development of Generative Artificial Intelligence (Generative AI), especially the widespread application of large language models such as ChatGPT, is reshaping the underlying logic of news production and dissemination. According to the 2024 Information and Communications White Paper released by Japan's Ministry of Internal Affairs and Communications [1], 83.6% of young Japanese people aged 18–29 obtain news through social media, with algorithmic recommendations serving as the core mechanism for information distribution.

This huge revolution has two effects: firstly, AI technology greatly enhances the efficiency and personalisation of news production; secondly, it presents substantial challenges to the conventional framework of media trust. The "filter bubble" phenomenon resulting from algorithmic recommendation systems [2] may lead to information cocoons and cognitive biases. At the same time, the "hallucination" issue of AI-generated content directly challenges the principle of news authenticity. Against this backdrop, traditional media trust theory faces new research questions: what fundamental changes have occurred in the formation mechanism of media trust among Japan's younger generation in an AI-dominated news ecosystem? Does the emotional mediating value of human anchors remain irreplaceable?

3. Theoretical framework and literature review

3.1. Definition of core concepts

Generative AI news refers to artificial intelligence systems that automatically generate news content using deep learning, trained on large volumes of data. Unlike traditional algorithmic recommendations, generative AI not only filters and ranks information but also creates entirely new news texts, possessing a stronger "producer" attribute [3].

Media trust refers to the audience's confidence in media institutions, content, and technology. Based on McLeod's media trust formation model [4], this paper defines media trust as comprehensive trust in media institutions, content, and technology.

3.2. Theoretical basis

Media Richness Theory [5] posits that different media vary in the richness of information they convey. Human anchors convey emotions through tone, facial expressions, and body language, building "parasocial interaction". In contrast, emotional expression in AI-generated content relies on the affective computing module of natural language processing technology—essentially "data-simulated emotion" lacking real human emotional experience and empathy.

The Computers as Social Actors (CASA) Theory posits that individuals subconsciously impose social rules onto computers [6]. This theory offers a significant viewpoint for examining trust processes in human-computer interaction.

Uses and Gratifications Theory emphasizes audience initiative, arguing that media effects depend on how audiences use media to satisfy their own needs. In the AI news environment, this theory helps analyze the instrumental information consumption behavior of young audiences.

3.3. Literature review

Existing research mainly focuses on three directions: first, the ethical issues in AI news, such as algorithmic bias and information authenticity [7]; second, the impact of AI on news production processes [8]; third, audience acceptance of AI news. However, most of these studies adopt a single-dimensional analysis, lacking a systematic examination of the interactive relationship between technology, content, and audience. This paper attempts to fill this research gap by constructing a three-dimensional analytical framework. Specifically, existing studies mostly focus on single dimensions such as technological ethics or content authenticity, yet rarely systematically analyze the structural reshaping of media trust mechanisms by AI news recommendations from the perspective of "technology-content-audience" three-dimensional interaction. What new characteristics do media trust mechanisms exhibit among Japan's younger generation in Japan's unique social and cultural context? These are the core questions this study attempts to answer.

4. Theoretical construction of the three-dimensional analytical framework

4.1. Technological dimension: algorithmic logic and the "depersonalization" of trust

The core feature of generative AI is "data-driven content generation", and its technological logic determines three shifts in news production:

In the conventional news production framework, the editorial judgement of professionals has historically held a central role in the curation of information. However, in AI news systems, personalized recommendations based on user profiles and behavioral data have gradually replaced the professional authority of traditional media. This paradigm shift from "editorial gatekeeping" to "algorithmic filtering" has significantly improved the accuracy of information matching but has also blurred the sources of information and weakened audience trust in the news production process. Meanwhile, the communication model is undergoing a profound transformation from "linear communication" to "interactive generation". AI news systems allow users to participate in news production directly through prompts. While this mechanism blurs the boundary between producers and consumers and enhances the user experience, it also creates ambiguity in accountability. In particular, it is difficult to trace specific responsible parties when AI generates misinformation, further exacerbating the trust crisis in news communication.

From "deterministic output" to "probabilistic generation", AI generates content based on the probability distribution of the training data, inherently carrying the risk of "fictionalization". This fundamental conflict between uncertainty and the core requirement of news authenticity becomes a major obstacle to media trust.

Japanese scholar Sato [7] points out that the younger generation's simultaneous "technological worship" and "algorithmic skepticism" toward AI form a unique psychology of "contradictory trust". This psychological state reflects the inherent tension in the technological dimension.

4.2. Content dimension: "algorithmic" emotional expression and the "de-emotionalization" of trust

In conventional journalism, human anchors cultivate audience trust with complex emotional expression. The emotional connection, a crucial driver of media trust, possesses the following attributes:

Authentic Experience: Human anchors' emotional expressions stem from real-life experiences, with irreproducible individuality and authenticity. In disaster reporting, anchors' trembling voices or tearful eyes convey empathy, a key indicator for audiences to perceive news authenticity.

Irrational Details: Human communication includes numerous "irrational details", such as subtle changes in tone and fleeting facial expressions. While inconsistent with strict logical rationality, these details are crucial elements in building interpersonal trust.

Cultural Adaptability: Human anchors can adjust their expressions to specific cultural contexts. In Japanese culture, this cultural adaptability manifests as the pursuit of "harmony" and attention to detail.

In contrast, emotional expression in AI-generated content has obvious limitations:

Limitations of Data Simulation: AI's emotional expression relies on patterns of emotional vocabulary in training data, lacking real emotional experience. While able to recognize and use words such as "sadness" and "sympathy", it cannot convey genuine emotional resonance. This lack of emotional resonance is reflected not only at the textual level but also has a profound impact on audience cognition and behavior. Without real emotional experience to support it, AI-generated content often fails to touch the audience's inner feelings, making it difficult for audiences to form deep emotional connections with the content. Over time, this lack of "warmth" leads audiences to feel alienated from AI news, weakening their trust in and dependence on media platforms, and ultimately reducing their willingness to participate and the effectiveness of information dissemination.

Uncanny Valley Effect: When AI's anthropomorphism exceeds a certain threshold, audiences experience a sense of rejection. In news broadcasting, this manifests as audiences feeling unnatural and uncomfortable when AI anchors' expressions and tones become too human-like.

Lack of Cultural Context: AI struggles to deeply understand the rules of emotional expression in specific cultural contexts. In Japanese society, which emphasizes "reading the air", AI finds it difficult to grasp subtle social relationships and emotional expression norms.

4.3. Audience dimension: cognitive needs and the "instrumentalization" of trust

Media usage among Japan's younger generation exhibits distinct contemporary characteristics that profoundly shape their media trust mechanisms:

Fragmentation:

Instrumental Cognition: According to Uses and Gratifications Theory, when audiences view AI news as an "information tool" rather than a "public institution", their trust in media exhibits characteristics of "instrumental trust", with the following features:

Short-term: Trust is granted only when AI meets information needs.

Conditional: Trust collapses rapidly once generated content deviates from expectations.

Substitutable: Easily replaced by other, more convenient tools.

This highly unstable "instrumental trust" contrasts sharply with the "institutional trust" of traditional media built through long-term brand accumulation.

5. Theoretical model: the "three-dimensional imbalance" of media trust in the AI era

Based on the above analysis, this paper proposes the Three-Dimensional Imbalance Model to explain the impact mechanism of AI news recommendations on media trust among Japan's younger generation:

5.1. Core elements of the model

Technological Dimension Imbalance: The contradiction between algorithmic "efficiency" and "uninterpretability" creates a lack of a rational foundation for audience trust in technology. Manifestations include the algorithmic black-box effect, which weakens transparency and traceability; the contradictory psychology of simultaneous technological worship and algorithmic skepticism; and ambiguous accountability.

Content Dimension Imbalance: The contrast between the "information density" and "emotional emptiness" of AI content weakens the emotional connection of trust. Manifestations include simulated emotional expression, a lack of authenticity, limited understanding of cultural context, and an inherent deficiency in empathy.

Audience Dimension Imbalance: Conflict between the younger generation's "instrumental needs" and the media's "public responsibility" reduces trust to a short-term utilitarian exchange. Manifestations include the contradiction between fragmented consumption and in-depth understanding, conflict between personal needs and public responsibility, and the imbalance between short-term satisfaction and long-term trust.

5.2. Dynamic characteristics of the model

The Three-Dimensional Imbalance Model has the following dynamic features:

Asymmetry: The degree of imbalance varies across the three dimensions, with the technological dimension most prominent, followed by the content dimension, and the audience dimension relatively stable.

Interactivity: The three dimensions mutually influence one another. An imbalance in the technological dimension exacerbates problems in the content dimension, which, in turn, affects audience trust mechanisms.

Dynamism: The imbalance state of the three dimensions changes dynamically with technological development, content optimization, and audience adaptation, but generally maintains a new trust structure characterized by high instrumental dependence, low emotional identification, and weak institutional trust.

5.3. Practical significance of the model

This model offers a novel theoretical framework for comprehending media trust in the age of AI.

Explanatory Power: Systematically elucidates the intricate effects of AI news suggestions on media trust, circumventing the constraints of unidimensional analysis.

Predictive Capability: Provides a theoretical foundation for forecasting future patterns in media trust.

Guiding Principle: Offers theoretical direction for media organisations, policymakers, and educators to enhance media credibility.

6. Discussion: the "emotional compensation" value of human anchors and future pathways

6.1. The irreplaceability of human anchors

Despite AI's powerful capabilities in news production, theoretical analysis in this study shows that human anchors' emotional mediating value remains irreplaceable. Within the Three-Dimensional Imbalance Model, human anchors can compensate for AI's trust deficiencies in the following ways:

As an Algorithmic Interpreter: Mitigates audience apprehension over the technological black box by providing expert interpretation, hence improving technological transparency and understanding.

As an Emotional Transmitter: Rebuilds emotional connections between audiences and media through genuine emotional expression, especially in crisis communication or disaster reporting, where human anchors'

empathy is irreplaceable.

As a Guardian of Public Value: Guides the younger generation beyond instrumental information consumption through in-depth reporting and critical thinking, rebuilding trust in the media's public nature [9].

6.2. Trust reconstruction strategy of "human-AI collaboration."

Based on the analysis of the Three-Dimensional Imbalance Model, this paper proposes a trust reconstruction strategy of Human-AI Collaboration:

Technological Level: Establish algorithmic transparency mechanisms, such as disclosing the basic principles of recommendation algorithms and enabling content source traceability.

Content Level: Construct a dual gatekeeping mechanism of "AI + Humans", with AI responsible for information collection and preliminary processing, and humans responsible for in-depth analysis and emotional expression.

Audience Level: Strengthen media literacy education to cultivate audiences' critical thinking [10], enabling them to assess the credibility of AI news rationally.

6.3. Practical pathways for Japanese media

Tailored to the specific context of Japanese media, the following practical pathways are recommended:

Cultural Adaptability Strategy: Embed culturally specific expression norms of Japan into AI systems, such as the pursuit of "harmony" and attention to detail.

Emotional Compensation Mechanism: Add human anchor emotional interpretation segments to AI news products, especially in major news event reporting.

Institutional Safeguards: Establish industry standards and ethical norms for AI news, clarify accountability, and enhance institutional trust.

7. Conclusion

By constructing a three-dimensional analytical framework of "technology-content-audience", this study thoroughly discusses the impact mechanism of generative AI news recommendations on media trust among young Japanese audiences. It indicates that AI news recommendation systems employ an asymmetric reconstruction across three dimensions, disturbing the relative equilibrium of traditional media trust and establishing a new trust framework defined by high instrumental dependence, low emotional identification, and weak institutional trust. On this basis, the main contributions of this study are the proposal of the Three-Dimensional Imbalance Model to expand the theoretical interpretation of media trust in the AI era, the revelation of human anchors' emotional mediating value in the AI era, the affirmation of the core status of "humans", and the provision of theoretical enlightenment and practical pathways for Japanese media to rebuild trust in the AI era. This study, constrained by its theoretical analysis focus, exhibits several deficiencies: firstly, it lacks empirical data, primarily depending on literature review and logical reasoning; secondly, it fails to thoroughly investigate the varied responses of distinct social groups (e.g., differing ages and educational levels); thirdly, the discourse on the specific implementation mechanisms of AI technology remains relatively broad. Accordingly, future research can be expanded in four aspects: conducting empirical verification through questionnaires and in-depth interviews to test the applicability of the Three-Dimensional Imbalance Model, carrying out cross-national/regional comparative research to reveal differences in trust mechanisms, continuously tracking the evolution of AI technology and analyzing its long-term impact on media trust, and promoting interdisciplinary integration (psychology, sociology, computer science, etc.) to deepen

understanding. Striking a balance between technological efficiency and humanistic values, and building a bridge between algorithmic logic and human emotions, will be an important direction for future media research, and the theoretical construction of this study also offers new perspectives and ideas for related research.

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