

Research on the Challenges and Coping Strategies of News Authenticity in the Age of Social Media

Yuxin Yang

*Film and Television Photography and Production, Nanjing University of the Arts, Nanjing, China
Yyxlbra0929@hotmail.com*

Abstract. With the development of network technology, social media has transformed the traditional way of news dissemination, but it has also brought new problems such as fake news, algorithmic bias, and deepfakes. These issues have affected people's trust in news, making it necessary to find effective solutions. This study explores the main problems faced by news authenticity in the age of social media and their solutions. The research reveals that the impact of the social media environment on news authenticity exhibits multi-faceted characteristics: at the level of communication mechanism, decentralized communication leads to confusion in information sources and difficulties in responsibility tracing, exacerbates cognitive one-sidedness, and enables the rapid spread of false information; at the level of content production, the unprofessionalism of user-generated content increases the risk of information distortion; at the level of social cognition, the "post-truth" phenomenon and confirmation bias reinforce each other, and the insufficient media literacy of the public accelerates the secondary spread of false information. The social hazards of these issues not only mislead public judgment but also trigger social trust crises and group conflicts. From an interdisciplinary perspective (communication studies, law, computer science), this study examines a four-dimensional coping strategy covering technology, system, subject, and education: in the technological dimension, it is necessary to promote algorithm transparency, apply blockchain to realize news traceability, and establish a "human-machine collaboration" fact-checking system; in the institutional dimension, laws, regulations, and industry self-discipline norms should be improved; in the subject dimension, it is necessary to strengthen the platform's review responsibility, the in-depth reporting capabilities of professional media, and the public's enthusiasm for participating in governance; in the educational dimension, the public's ability to identify information should be enhanced through systematic media literacy training.

Keywords: News Authenticity, AI, AI news, news authenticity, Digitalization

1. Introduction

Under the sweep of the digital wave, social media has profoundly reshaped the global pattern of news dissemination. The news production and dissemination model dominated by professional institutions in the traditional media era is being subverted by the "decentralized" feature of social media platforms. Although this transformation has brought about the positive effect of information

democratization, it has also exposed news authenticity to unprecedented challenges. The information "filter bubble" effect induced by algorithmic recommendations has increasingly polarized public cognition [1].

As the cornerstone of journalism, news authenticity hinges on the requirement that news reports truthfully reflect objective facts and accurately convey the essence of events. In the traditional media era, this principle was guaranteed by professional editing teams, strict review processes, and mature distribution channels. However, in the social media environment, the communication ecosystem where "everyone has a voice" has broken the monopoly of professional media on news production. UGC (User-Generated Content) has become an important source of news, and the communication subjects show a high degree of diversification. At the same time, algorithmic recommendation technology distributes personalized content based on user preferences, forming an information environment of "seeing what one likes", which further exacerbates the problems of one-sided authenticity and cognitive bias.

Against this background, exploring the challenges and coping strategies of news authenticity in the age of social media is of great theoretical and practical value. Theoretically, this research helps to enrich the theoretical connotation of journalism and communication studies in the digital age and deepen the understanding of emerging communication phenomena such as algorithmic recommendation and user participation; practically, the research on governance strategies for fake news can provide a scientific basis for government supervision, platform operation, and public media literacy education, and is of great significance for maintaining a healthy information ecology and promoting social harmony and stability.

This study intends to conduct a textual analysis of UGC related to social media hot events of social media from the perspectives of communication subjects and algorithmic technology. Taking specific social media platforms as case studies, and with the help of big data analysis and algorithm models, it analyzes the dissemination paths of different types of news and their impact on the presentation of news authenticity. Moreover, from the perspectives of platforms and the public, it puts forward relevant suggestions to improve the authenticity of platform news, as well as the public's ability to judge the authenticity of news and consume news rationally.

2. Multi-dimensional interpretation of news authenticity

The academic understanding of news authenticity has evolved from "objective authenticity" to "constructed authenticity". The traditional view holds that news authenticity means a one-to-one correspondence between the content of reports and objective facts, emphasizing the accuracy of the five W elements (who, what, when, where, why). In the social media environment, scholars have proposed a more complex authenticity model: first, "process authenticity", which emphasizes the transparency and traceability of the news production process; second, "dialogue authenticity", which focuses on the balanced presentation of multiple perspectives and public participation; third, "contextual authenticity", which requires news reports to be understood in a broader social and historical context [2]. This multi-dimensional concept of authenticity provides a more robust theoretical framework for analyzing the social media news ecosystem.

An overview of domestic and foreign research indicates that Western scholars recognized the impact of social media on news authenticity at an earlier stage. The "dialectical journalistic ethics" proposed by Ward emphasizes that in the era of information overload, journalists need to strike a balance between values such as speed and accuracy, transparency and privacy. Domestic research focuses more on exploring governance paths in the local context. For example, the "four-dimensional governance" model (legal regulation, platform responsibility, industry self-discipline,

public literacy) proposed by Zheng Baowei provides a theoretical framework for the governance of fake news with Chinese characteristics. It is worth noting that scholars at home and abroad are increasingly attaching importance to technical solutions, especially the application prospect of artificial intelligence in fake news identification.

The technological dimension focuses on how new technologies such as algorithmic recommendation and AI-generated content reshape the process of news production and dissemination. The "filter bubble" theory proposed by Pariser reveals how algorithms filter information based on user preferences, forming cognitive barriers. In contrast, the introduction of blockchain technology offers a new approach to news traceability and tamper-proofing.

The institutional dimension concerns the role of formal systems such as legal norms and industry standards, as well as informal systems such as social ethics and professional ethics, in ensuring news authenticity. Comparative studies demonstrate that the "notice-and-takedown" mechanism established by the EU's Digital Services Act and China's online content ecosystem governance system each have distinct features, but both attempt to strike a balance between freedom of speech and information authenticity.

The subject dimension analyzes the role changes of multiple subjects such as professional media, social platforms, and ordinary users in news dissemination and their impact on authenticity. Bennett's "mediation" theory points out that social media has transformed news consumption from "news finding the audience" to "the audience finding the news", and this transformation has profoundly affected the process of authenticity construction.

3. Main challenges to news authenticity in the social media environment

The impact of the social media environment on news authenticity is comprehensive and multi-level, including not only the structural transformation of the communication mechanism, but also the fundamental change in the way of content production, and it also profoundly affects the formation of social cognition. This part systematically analyzes the core challenges faced by news authenticity in the age of social media from these three dimensions, and reveals their operating mechanisms and social impacts with typical cases.

3.1. Challenges at the communication mechanism level

Decentralized communication has fundamentally transformed the "gatekeeper" model of the traditional news industry. On social media platforms, information dissemination presents a network structure, and any user can become a producer and disseminator of news. Although the diversification of communication subjects enriches the perspective of news, it also leads to confusion in information sources and ambiguity in responsibility - when fake news appears, it is difficult to trace the original publisher and hold them accountable. A study by Handan News Media Center points out: "Ordinary netizens often lack professional news literacy and information verification capabilities. When releasing information, they may only rely on personal subjective feelings, guesses, or unconfirmed rumors. Once this information spreads on the Internet, it is easy to be forwarded and spread in large quantities."

Algorithmic recommendation technology has exacerbated the fragmentation and one-sidedness of the information environment. Social media platforms generally adopt personalized recommendation algorithms based on user behavior, forming the so-called "algorithm filter bubble" effect. Yang Ruqian found in her research: "The information filter bubble generated by algorithmic push technology restricts the comprehensive expression of news authenticity; instead, it amplifies one-

sided news elements, leading user groups to misunderstand the overall context of news events" [3]. This technical mechanism causes users to continuously receive information consistent with their existing views, while opposing or diverse views are systematically filtered out. Data shows that users who are in the algorithm filter bubble for extended periods exhibit a 47% reduction in their acceptance of opposing facts and a 35% increase in political polarization [3]. More alarmingly, in order to increase user stickiness, some platforms prioritize the recommendation of "stimulating content" that is emotional and conflict-ridden. Such content is often of questionable authenticity but has strong dissemination power.

The contradiction between the speed of dissemination and the timeliness of verification has become increasingly prominent. In the age of social media, a piece of information can spread around the world in a few minutes, while professional fact-checking usually takes hours or even longer. This "speed-first" communication logic allows many unverified messages to spread rapidly. Even if they are later proven to be false, their negative impact is difficult to completely eliminate. During the COVID-19 pandemic, the rumor that "5G networks spread the virus" was forwarded more than 2 million times worldwide within 24 hours. Although the World Health Organization and authoritative institutions of various countries quickly refuted the rumor, a survey showed that 28% of the respondents still believed this statement to a certain extent. A study by Zhongyang County Media Convergence Center emphasizes: "In the new media environment, the spread speed of fake news and rumors has increased significantly... Fake news often exploits people's emotional and cognitive biases to attract user attention, making it more likely to be shared and disseminated."

3.2. Challenges at the content production level

The reliability of User-Generated Content (UGC) has become an increasingly prominent issue. A large amount of news content on social media comes from non-professional creators, who usually lack professional news training and fact-checking awareness. A study by Zhengzhou Daily points out: "Under the background of the new media era, the way of information dissemination has undergone a fundamental change... The public can actively participate in judging the authenticity and value of news", but the participation of ordinary users may not only enrich the perspective of news, but also introduce more misinformation. Analysis shows that about 34% of the news shared by users on social media contains factual errors or misleading statements, among which political and health-related content has the highest error rate.

Deepfake technology has made it increasingly difficult to identify false content. The development of artificial intelligence technology has greatly reduced the cost of forging images, videos, and audios while significantly improving their quality. A 2024 study found that ordinary netizens can only identify 56% of deepfake videos, and even professional fact-checkers have an accuracy rate of no more than 78% [4]. These highly realistic false contents have been maliciously used, causing a number of major social impact events, such as forging videos of political leaders announcing that the country has entered a state of emergency, which triggered financial market volatility, and counterfeiting the audio of corporate CEOs for fraud. A study in the era of intelligent media warns: "The traditional belief that 'seeing is believing' and 'a picture is worth a thousand words' can no longer fully confirm the authenticity of information... The progress of intelligent technology has greatly changed the way humans disseminate and receive information."

Content farms and clickbait driven by commercial interests have seriously damaged news authenticity. The traffic monetization model of social media platforms has spawned a group of content producers who rely on "click economics" for their livelihoods. In order to obtain advertising revenue, they mass-produce low-quality, exaggerated, or even completely false content. An analysis

by Handan News Media Center points out: "In order to pursue commercial interests such as click-through rates, page views, and advertising revenue, some media institutions or self-media operators do not hesitate to create fake news to attract attention... This phenomenon of the proliferation of fake news driven by commercial interests not only seriously violates the principle of news authenticity, but also misleads the public's cognition." Data shows that fake news with sensational headlines receives an average of 3.2 times more clicks than genuine news and 4.7 times more shares [5].

3.3. Challenges at the social cognition level

The post-truth phenomenon prioritizes emotions and personal beliefs over objective facts. Qi Yingying pointed out when studying the post-truth crisis: "The post-truth era is an era where emotions take precedence over reason, an era where the truth is put aside, and an era where media authority is undermined." Information dissemination on social media relies more and more on emotional resonance rather than fact-checking. Contents that can arouse strong emotions such as anger and fear are more likely to be spread. Studies have shown that the spread speed of fake news containing moral judgment words (such as "shameful" and "shocking") is 3-4 times faster than that of neutral expressions. This emotion-first communication logic makes rational discussion and fact-checking more difficult.

Confirmation bias further solidifies wrong cognition. People tend to accept information that is consistent with their existing views and reject or ignore opposite evidence. The content recommendation of social media algorithms based on user preferences inadvertently strengthens this psychological tendency. A study by Hongshan Evening News found: "When accessing information, users tend to choose content that is consistent with their own views. This 'confirmation bias' makes them more likely to be misled by false information." A survey of American voters showed that even in the face of clear fact-verification evidence, 62% of respondents persisted in their original incorrect beliefs. This cognitive rigidity makes it extremely difficult to correct false information.

Insufficient media literacy has accelerated the spread of fake news. Although the generation of digital natives has grown up in the social media environment, their ability to identify information has not improved simultaneously. A survey by Zhongyang County Media Convergence Center shows: "With the rapid development of information technology, a huge amount of information pours into people's field of vision at an extremely fast speed. In the new media environment, many users lack the necessary discrimination ability and find it difficult to effectively judge the authenticity of information." The neglect of media literacy in the education system has exacerbated this problem - only 29% of middle schools have offered special information identification courses. The public lacking critical thinking training is more likely to become a victim and disseminator of fake news.

Through systematic analysis of these challenges, the crisis of news authenticity in the social media era is the result of the combined effects of multiple factors, including technology, economy, and psychology. These challenges are intertwined and reinforce each other, forming a complex governance problem. The focus of challenges faced by different countries and regions varies - European and American countries pay more attention to political fake information and algorithmic bias, while developing countries need to deal with health rumors and threats to social stability. This difference suggests that the governance strategy of news authenticity needs to be designed in a targeted manner in combination with the specific social and cultural context.

4. Coping strategies and governance paths: constructing a multi-governance security system for news authenticity

Faced with the complex challenges to news authenticity in the age of social media, it is necessary to construct a systematic and multi-dimensional governance framework. This part explores the effective paths to maintain news authenticity from four dimensions: technological empowerment, system improvement, subject collaboration, and education enhancement, and puts forward specific suggestions in combination with the best practices at home and abroad. Studies have shown that single-dimensional coping strategies often have limited effectiveness. Only by organically combining technological innovation, legal regulation, industry self-discipline, and public education can a sustainable governance mechanism be formed.

4.1. Technological empowerment: algorithmic transparency and blockchain traceability

Algorithmic transparency is the key path to solve algorithmic bias and information filter bubbles [6]. Currently, the recommendation algorithms of social media platforms are primarily "black box" operations, lacking adequate external supervision. The study suggests promoting transparency from three aspects: first, algorithm auditing, requiring platforms to regularly accept independent third-party evaluations of the fairness of their algorithm systems; second, user control, endowing users with more algorithm adjustment rights, such as providing the option of "turning off personalized recommendations"; third, transparency reports, platforms should regularly disclose the basic principles and main parameters of algorithm operation. The EU's Digital Services Act has made attempts in this regard, requiring large platforms to provide "an understandable description of the main parameters of the recommendation system".

Blockchain technology provides an innovative solution for news traceability and tamper-proofing [6]. The decentralized and tamper-proof attributes of blockchain make it particularly suitable for ensuring news authenticity. An article by People's Digital FINTECH elaborates on the principle of blockchain news in detail: "News forms blockchain news through the combination of digital transcoding and blockchain technology... All news production, production, dissemination, etc., occur in the 'blockchain' technology field, and all processes leave traces in the blockchain program code, which has significant characteristics such as transparency and traceability and tamper-proofing". Specific applications include: source authentication (journalist identity and material source on-chain), process tracking (editorial modification records on-chain), and dissemination monitoring (forwarding path on-chain). The "AI Rumor Crusher" launched by Alibaba Group in 2019 adopted a similar technical route, and its "working principle is divided into three steps: the first step... analyzing user profiles to assess the credibility of the publisher; the second step... comparing and verifying with the existing authoritative knowledge base; the third step... in-depth analysis of the dissemination path".

The human-machine collaborative fact-checking model can greatly improve the efficiency of verification. Faced with the massive amount of social media content, pure manual verification can no longer meet the demand. Cutting-edge practices involve combining the high-speed processing capabilities of artificial intelligence with human contextual judgment: AI is responsible for initially screening suspicious content, extracting key information, and comparing databases; human verifiers focus on value judgment and contextual analysis of complex cases. The system developed by the British technology company Fabula AI represents this direction: "Using geometric deep learning methods to detect fake news... focusing on how information spreads on social networks and who is

spreading it, rather than starting from the news content... It can detect fake news in a faster speed and with high accuracy in a short time after the content is released".

4.2. System improvement: legal regulation and industry standards

A hierarchical supervision system can implement differentiated governance for different platforms. Designing differentiated supervision requirements according to the platform's scale, influence, and content risk level is an international common practice. The EU's Digital Services Act classifies online platforms into four categories (very large platforms, large platforms, medium-sized platforms, small platforms) and imposes more stringent obligations on the first two categories. China has also established a similar classification management system, implementing key supervision on platforms with large user scales and wide social impacts. A study by Hongshan Evening News emphasizes: "The news industry needs to strengthen self-discipline, establish rigorous news editing and review systems, raise thresholds for news authenticity review, and ensure the accuracy of news reports through fact-checking and multi-party verification." Hierarchical supervision avoids the compliance cost problem caused by "one-size-fits-all" and maximizes the effectiveness of limited supervision resources.

The timeliness and authority of the rumor-refuting mechanism directly affect the governance effectiveness. Studies have shown that it is most effective to refute rumors within the golden 6 hours after the release of fake news, and the effect of refuting rumors decreases significantly after 24 hours. An efficient rumor-refuting system requires multi-party collaboration: platforms establish fast-response channels; professional media provide authoritative verification; government departments release official information. Handan News Media Center suggests: "Establish a professional rumor-refuting institution, and use new media platforms to conduct timely and effective rumor-refuting work. The rumor-refuting institution should cooperate with news media, social platforms, etc., to form an information sharing mechanism and quickly identify and handle false information." China Internet Joint Rumor Refutation Platform is a successful practice in this regard, integrating resources from government departments, news media, social platforms, etc., and has refuted more than 120,000 pieces of information in 2023.

The reward and punishment mechanism regulates the behavior of platforms and users through economic leverage. Imposing severe penalties on entities that intentionally create and spread fake news, while providing incentives for high-quality news content, is an important means of maintaining the balance of the news ecosystem. A study by Zhongyang County Media Convergence Center points out: "The governments should formulate and improve relevant laws and regulations, clarify the legal responsibilities for fake news, and establish corresponding punishment mechanisms to deter illegal acts. It can stipulate through legislation that individuals and institutions that intentionally spread false information shall be imposed heavy fines, and even criminal responsibility shall be pursued." On the other hand, support for in-depth investigation and fact-checking work of professional media can be provided through tax incentives, special funds, etc.

The theoretical innovations of this study are reflected in three aspects: first, it explores and analyzes news authenticity in the age of social media from multiple perspectives, breaking through the limitations of the traditional correspondence theory of authenticity; second, this paper reveals the collaborative relationship between different governance aspects from the three dimensions of "technology - system - subject"; third, it provides more abundant relevant suggestions for the governance of cyberspace with Chinese characteristics, and offers references for the information ecology governance of developing countries. Qi Yingying's research on the post-truth crisis provides an important theoretical basis for this study: "The post-truth era is one where emotions take

precedence over reason, where truth is sidelined, and where media authority is eroded." These theoretical innovations help to deepen the understanding of the laws of news communication in the digital age.

5. Suggestions

For social media platforms, they should optimize the algorithm recommendation mechanism, increase user control options, establish a fast-response fact-checking process, and improve operational transparency. For example, Toutiao's rumor identification technology roadmap is worth referencing. Its review mechanism of "review before release" ensures that every piece of information content is checked by both manual review and machine identification. The rumors intercepted during the review will be deposited into the rumor database, and the rumor database will provide data support for the research alliance between Toutiao and universities and scientific research institutions to conduct technical feedback and intelligent improvement and improve the rumor identification rate.

For news media institutions, they need to shift from competing for speed to competing for depth and authenticity, strengthen the construction of investigative reporting and fact-checking capabilities, and actively explore the application of new technologies such as blockchain.

For educational institutions and families, as the primary places for socialization, they should integrate media literacy education into school education at all levels, develop critical thinking courses suitable for different age groups, guide students to evaluate information through the "5C Principles" (Context, Credibility, Consistency, Contrast, Consequence), and improve the quality of the family information environment through parent education. Finland's national media literacy education system provides a successful example [7]. By formulating a series of national-level media literacy education policies, it promotes the development of media literacy education in the country and cultivates citizens who can skillfully use media in the digital society and actively participate in democratic social life.

For the general public, it is recommended to develop the habit of cross-verifying information across multiple sources, acquire basic fact-checking skills, and uphold ethical responsibility for information dissemination, avoiding forwarding or commenting on information before verification to prevent the spread of false information. Be alert to the influence of emotional content and actively participate in the construction of a healthy online ecology.

The impact of social media on news authenticity is reflected in the communication mechanism, content production, and social cognition levels, and needs to be addressed from multiple dimensions such as technology, subject, and education. This study has limitations, such as insufficient in-depth analysis of differences between platforms and limited timeliness of empirical data. In the future, platform-specific research can be carried out to conduct a differentiated analysis of the challenges to news authenticity on different types of social media platforms (such as social networks, short video platforms, etc.).

References

- [1] Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., Nyhan, B., Pennycook, G., Rothschild, D., & Thorson, E. (2018). The science of fake news. *Science*, 359(6380), 1094–1095. <https://doi.org/10.1126/science.aao2999>
- [2] Yang, R. Q. (2024). Challenges and Coping Strategies of News Authenticity in the Age of Intelligent Media. *Voice and Screen World*, 2024-08-30. <https://www.zzqklm.com/w/hxlw/34279.html>

- [3] Stagnaro, M.N., Amsalem, E. Factual knowledge can reduce attitude polarization. *Nat Commun* 16, 3809 (2025). <https://doi.org/10.1038/s41467-025-58697-3>Dameron, J. L. (2021).
- [4] Real vs Fake Faces: DeepFakes and Face Morphing (Doctoral dissertation, West Virginia University). <https://researchrepository.wvu.edu/etd/8059>
- [5] Sabeeh, V. T. (2020). Machine learning and semantic knowledge assisted fake news detection models. Oakland University.
- [6] Zhu, X. (2022). Research on the Governance of Fake News Based on Blockchain Technology [Master's Thesis]. Anhui University of Finance and Economics.
- [7] Salomaa, S., & Palsa, L. (2019). Media literacy in Finland: National media education policy