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Research on the Change Mechanism of Expert Credibility of Chinese Internet Platforms from the Perspective of Cognitive Balance

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Abstract: The spread of new media technologies in China has facilitated knowledge dissemination and public opinion exchange, but the COVID-19 pandemic has compounded the complexity and challenges of this process. During the pandemic, experts made frequent statements through new media, making it difficult to distinguish the truth from the truth, resulting in information overload and an increase in the burden of public cognition. Experts' forecast errors and other events lead to the public's questioning and resolution of the credibility of experts, and even produce boredom, affecting the authority of experts' remarks. This study aims to explore the causes of this phenomenon and the trend of expert credibility. It not only refines the analysis framework of the factors affecting expert credibility but also reveals the complex mechanism of expert specialization, public cognition, and event domain, providing valuable insights for understanding and improving the trust of experts in the public. By combining the cognitive balance theory, this study uses case analysis and text analysis to conduct an in-depth study on the expert videos and their comments on TikTok. The results show that there is a positive correlation between expert credibility and public attitude consistency. In addition, there is a significant negative correlation between the credibility of experts and the degree of public cognition, but the relationship between the degree of expert specialization and the scope of the event field is weak. Finally, this study proposes that diversification and information transmission characteristics should be considered to construct expert trust mechanisms in social media environments.

Keywords: Expert Credibility, Cognitive Balance, TikTok, Public Awareness.

1. Introduction

With the rapid development of new media technology in China, cyberspace has become an important field for knowledge dissemination and public opinion exchange. In this context, many experts and scholars have actively embraced new media platforms, making use of their extensive coverage and instant interaction to convey professional knowledge and unique insights to the public, which has greatly enriched the diversity of information ecology. However, the COVID-19 outbreak and its aftermath have brought unprecedented challenges and complexities to this process.

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During the epidemic, in the face of the severe situation of public health emergencies, the demand for professional guidance and information interpretation from all sectors of the society has risen sharply, prompting experts and scholars to speak more frequently on online platforms. However, the expert opinions of this period show remarkable diversity and difference, ranging from authoritative interpretations based on scientific research and rigorous analysis to personal opinions that are not fully verified or biased. Due to the massive and fragmented nature of information on network platforms, it is often difficult for the public to effectively distinguish the authenticity and accuracy of such information when they obtain it, which leads to increased information overload and cognitive burden.

Take one expert prediction error during the epidemic as an example, a well-known public health expert made an optimistic estimate of the development trend of the epidemic in public, but the actual situation far exceeded expectations. The prediction error quickly sparked widespread discussion online, with some netizens questioning the expert's professional ability and casting doubt on the entire community of experts. Subsequently, similar events continued to occur, and each forecast deviation or controversial remarks acted as a catalyst to intensify the public's doubts and resolution of the credibility of experts.

This study looked at this phenomenon in depth and found that as the explosion of expert speaking increased, the public's attitude toward it gradually shifted from expectation to impatience and even boredom. In some cases, the public no longer passively accepts the opinions of experts but adopts a more active and confrontational interpretation, questioning, refuting and even mocking the opinions of experts. This change in attitude has not only weakened the authority of what experts say but also exacerbated the public's distrust of the expert community, resulting in the word "expert" being given a negative teasing connotation in some contexts.

This study aims to explore the causes of this phenomenon and the development trend of expert credibility under different circumstances, hoping to promote effective communication between experts and the public, rebuild expert credibility, and contribute to the construction of a healthy and rational network of knowledge dissemination environment.

2. Literature Review

When discussing people's psychological and behavioral tendencies on social and Internet platforms, a core observation point is their pursuit of balance and harmony. In 1958, American social psychologist Heider proposed the "balance theory" (also known as the "P-O-X" theory), which provided the theoretical basis for this phenomenon. Heider believes that people need to maintain a tendency of consistency and coordination with themselves to the maximum extent. Even in an unbalanced cognitive state, people will urge themselves to change some factors of their cognitive system to restore the balance of the cognitive system [1].

A similar attitude theory is the symmetry theory, and its "A-B-X" model proposed by American social psychologist Newcomb, which further expounds the importance of system balance from the perspective of interaction and cognitive change. He believed that any system has its own specific balance of forces and that changes in any part of the system will eventually restore balance or symmetry [2].

With the rapid development of the contemporary Internet, the contemporary network platform serves as the key discourse channel for experts to convey information to the public. Compared to information from unfamiliar sources or non-expert sources, people are more likely to trust information from experts, especially when these experts are people they know well, and they think the information they bring is more reliable [3].

In addition to these theories about people's attitude change, many other studies have also considered people's value orientation, and people tend to prefer their own values and beliefs rather

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than relying on expert advice [4]. People do not automatically assign credibility to information just by its source; Instead, they assess the credibility of an expert based on what the expert has said, as well as their own cultural background and biases [5].

The impact of network platforms on the credibility of experts is a double-edged sword. People have gradually observed an extremely contradictory phenomenon in the network platform: in the process of disseminating relevant facts and information, experts not only fail to fully abide by their duty to inform but often inadvertently or even intentionally amplify the severity of some risks and even fabricate some risk information, thus unconsciously becoming the spawner of existing risks and new risks [6].

Originally, experts served as academic authorities or civil technical leaders. After the popularization of the media, experts participate in the discussion of public events through the media, which not only helps the public reduce the information burden but also satisfies the public's demand for rational analysis. However, the popularity of the media also leads to the pursuit of fame and gain by some experts and the publication of unrigorous, one-sided, and subjective views, which damages the credibility of the entire group of experts [7].

The core of the construction of public trust in experts lies in the natural dependence on expert authority. The basis for this trust decision-making includes personal experience and the words and deeds of social networks. Based on these experiences, the public forms a perceptual perception of the expert and compares it with the expected image of the expert. Trust is generated when it is consistent, while deviation may hinder trust. This process reveals the dynamic mechanism of trust construction and its intrinsic relationship with expert dependence [8].

With the popularization of education and the improvement of information retrieval ability, the public's ability to make independent judgments on controversial topics is enhanced. Although these judgments may be accompanied by certain one-sidedness, they undoubtedly highlight the awakening of the public's awareness of questioning. This changes the mode of public trust in the expert system from blind trust to prudently reserved trust, which not only reflects the maturity of public cognitive ability but also reflects the increasingly strong atmosphere of social rational thinking [9].

When building trust between experts and the public, it is necessary to face the cognitive gap caused by the difference in knowledge background and position. Experts assess risks with a rigorous scientific attitude, formulate countermeasures, and demonstrate them in professional terms; People rely on experience and intuition, and pay attention to the personal impact of risk. The discourse system of the two sides is asymmetrical, communication is difficult, and the foundation of trust is challenged. Bridging the cognitive gap, promoting effective communication, and building deep trust are important issues in the current society [10].

Although existing studies have extensively explored the psychological and behavioral tendencies of people on Internet platforms and the influencing factors of expert credibility, under the specific Internet ecological and cultural background in China, there are still some gaps and areas to be explored in the in-depth research on the change mechanism of expert credibility from the perspective of cognitive balance.

3. Methodology

This study is based on the basic framework of cognitive equilibrium theory, which holds that the unbalanced state in the system will eventually tend to reach an equilibrium state. At this time, the framework of the equilibrium state is brought into this study to further explore the changing mechanism and influencing factors of expert credibility, as shown in Figure 1.

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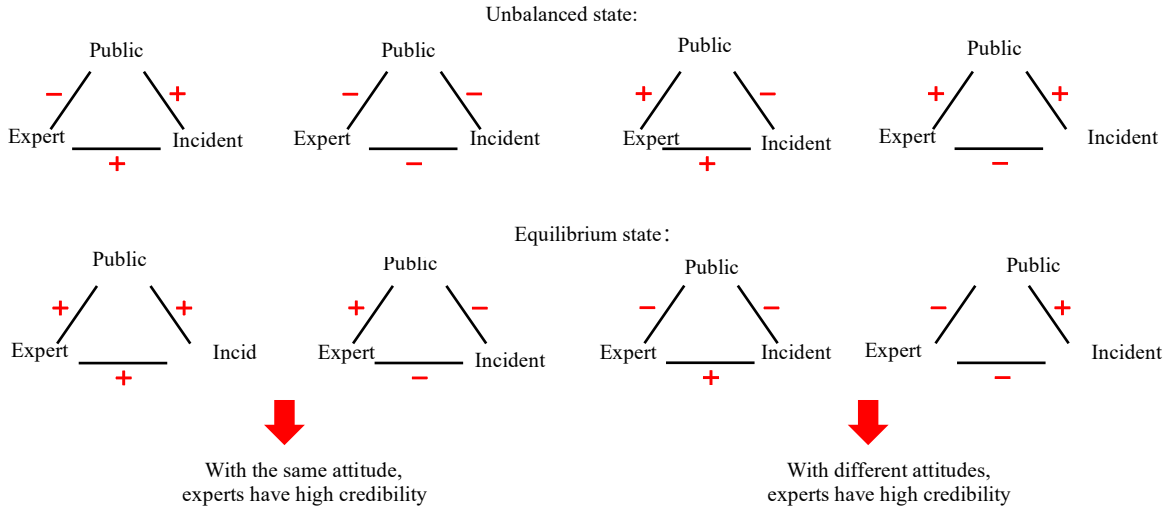

Figure 1: Theoretical framework of cognitive balance

In order to verify the relationship between the credibility of experts and the consistency of public and expert attitudes, this study adopts the method of case analysis and text analysis. According to the different fields that experts are engaged in, after excluding politically sensitive areas, the main fields of experts' usual speeches on online platforms are divided into five major categories: economics and finance, education, medical health, science and technology, and sociology. Subsequently, TikTok is taken as the observation point. As a mainstream network platform in China, its data are extensive and representative. Using TikTok keyword search technology (such as "field + expert") to screen out the top video content in the above five fields. In these videos, focus on analyzing the comments under these videos.

This study continues to explore the relationship between the credibility of experts and the degree of public cognition, the degree of specialization of experts and the scope of the field of events. Based on the in-depth consideration of the influence of expert opinions on social phenomena and its constituent factors, it aims to explore the internal relationship between various factors through scientific methods.

In this study, variables were defined and operationalized first, as shown in Figure 2. Expert credibility refers to the degree of public trust that an expert has in a particular field because of his or her expertise, experience, and past performance; The public awareness degree refers to the public's understanding of an event or topic and its initial judgment; The expert specialization degree refers to the depth and breadth of knowledge and the richness of practical experience of an expert in his or her professional field. The event domain scope refers to the scope of a particular social, scientific, or technical field covered by an expert opinion.

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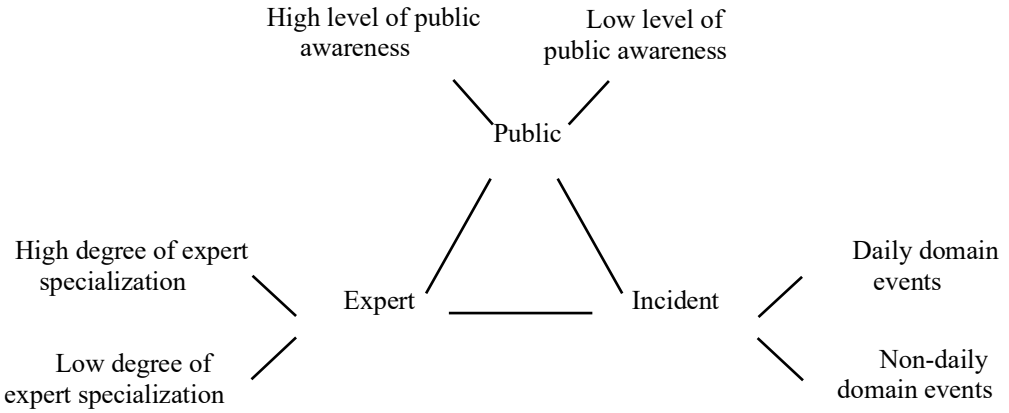

Figure 2: Variable definition

Specifically, this paper arranges and combines two possibilities of each of the above three variables to form eight different situational combinations, as shown in Figure 3. This arrangement and combination method aims to cover all possible variable combinations in order to facilitate subsequent comparative analysis; For each combination of situations, select a representative and popular video or case as the analysis object. At the same time, collect the top 500 comments on these videos or cases for subsequent sentiment analysis; Then, text analysis is used to analyze the emotional tendency of the comments collected above, so as to understand the public's attitude towards expert opinions and their changes. This step helps to indirectly reflect changes in the credibility of experts and their relationship to the level of public perception.

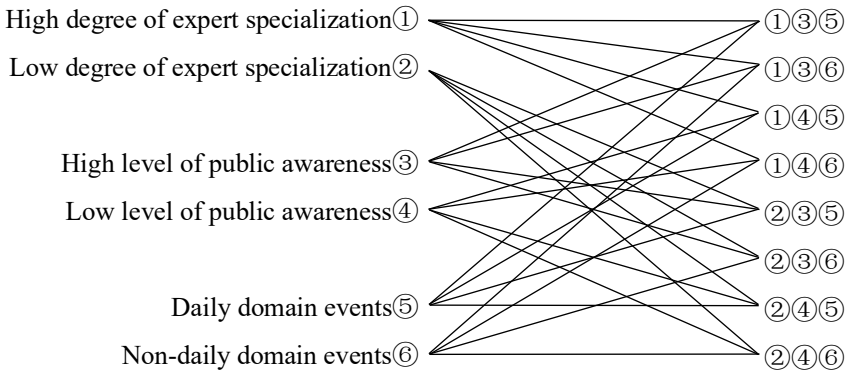

Figure 3: Eight combinations of three variables

After the above operations, this study conducted a correlation analysis of the above variables:

(1) The correlation between expert credibility and expert specialization

By controlling for the consistency of public perception and event domain scope variables, this study analyzed the correlation between expert credibility and expert specialization. Specifically, in this study, ①③⑤ and ②③⑤ were divided into one group as control; ①③⑥ and ②③⑥; ①④⑤ and ②④⑤; ①④⑥ and ②④⑥. By comparing the change of expert credibility under different degrees of specialization, the influence of specialization degree on credibility is discussed.

(2) The correlation between expert credibility and public awareness

Similarly, by controlling for the degree of expert specialization and the consistency of event domain scope variables, this study analyzes the correlation between expert credibility and public awareness. The purpose of this process is to reveal how the degree of public awareness affects the

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judgment of the credibility of experts. Specifically, in this study, ①③⑤ and ①④⑤ were divided into one group as control;①③⑥ and ①④⑥; ②③⑤ and ②④⑤; ②③⑥ and ②④⑥. Further, in order to further explore the positive and negative correlation between expert credibility and awareness, this study also verified the correlation and strength of the two under different situations through multiple control variable experiments.

(3) The correlation between expert credibility and the scope of the event

Finally, this study analyzed the correlation between expert credibility and the scope of the event domain by controlling for the consistency of the variables of expert specialization and public awareness. The aim of this step is to reveal the differences in the expert credibility in different fields and their causes. Specifically, the study divided ①③⑤ and ①③⑥ into a control group; ①④⑤ and ①④⑥; ②③⑤ and ②③⑥; ②④⑤ and ②④⑥.

4. Results

4.1. The Positive Correlation between Expert Credibility and the Consensus of Public and Expert Attitudes

This study first collected the most popular videos on TikTok, and quantified the audience's emotional tendency (positive or negative) to expert opinions by conducting sentiment analysis on the comment text. Specifically, by calculating the proportion of negative emotions in each video comment, the credibility level of the experts was assessed accordingly. If the proportion of negative emotion is relatively high, it indicates that the credibility of the expert in the field is low; On the contrary, it indicates high credibility.

For example, in the economic and financial field, "experts suggest appropriate price increases for hydropower and gas" video comments, negative feelings accounted for 69.5%; In the medical and health field, "doctors emphasize supplementing high-quality protein" video comments accounted for 43.36% of negative emotions; In the field of education, "experts suggest that lower grades be exempted from exams and results", the negative emotion accounted for 54.96%; In the field of science and technology, the negative comments of "sea water is the treasure of mankind" accounted for 49.74%; In the video comments of "experts talking about the preparation of young people for old age" in the field of sociology, 65.79% of the negative emotions were reported, as shown in Figure 4.

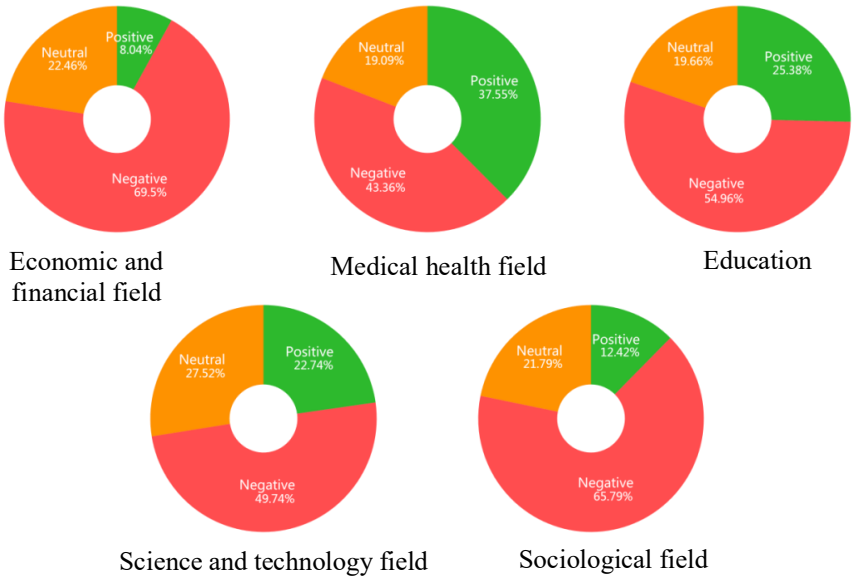

Figure 4: Sentiment analysis of video reviews in various fields

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4.2. The Correlation between Expert Credibility and Three Sets of Variables

4.2.1. The Weak Correlation between Expert Credibility and Expert Specialization Degree

After grouping the above eight groups of conditions, the results show that when the public awareness degree of the control condition is consistent with the scope of the event domain, the expert's credibility will be different due to different specialization degrees, except for the daily domain videos with high public cognition degree. The credibility of the experts in the remaining groups is consistent when the variables are the same. The degree of specialization of experts did not significantly affect the public's assessment of their credibility. Therefore, it is inferred that there is a weak correlation or perhaps no direct correlation between expert credibility and expert specialization degree, as shown in Figure 5.

4.2.2. The Negative Correlation between Expert Credibility and Public Awareness Degree

The research perspective turns to the correlation analysis between public awareness degree and expert credibility. Using a consistent control variable strategy, the study found that there were significant differences between different groups at this time. In addition to the videos with low professional degree of experts in daily fields, the credibility of experts is not affected by public awareness degree, and the credibility of experts shows consistency, while the credibility of experts in the remaining groups shows significant differences, which proves that the credibility of experts is strongly correlated with the public cognition degree at this time.

Specifically, through in-depth comparison of three sets of data with different characteristics of public cognitive strength, this study found an interesting phenomenon: the improvement of public cognition did not enhance the credibility of experts as expected, but showed a negative correlation trend. That is, with the deepening of the public's cognition of a certain field, they may be more critical and skeptical of experts' remarks, resulting in a relative decline in the credibility of experts, as shown in Figure 5.

4.2.3. The Weak Correlation between Expert Credibility and Event Domain Scope

Finally, the study also explores the potential impact of event domain scope as another key variable on expert credibility. Through cross-domain comparison, this study found that although the specific performance of expert credibility in different fields was different, in general, there was no strong direct correlation between the domain scope and expert credibility, as shown in Figure 5.

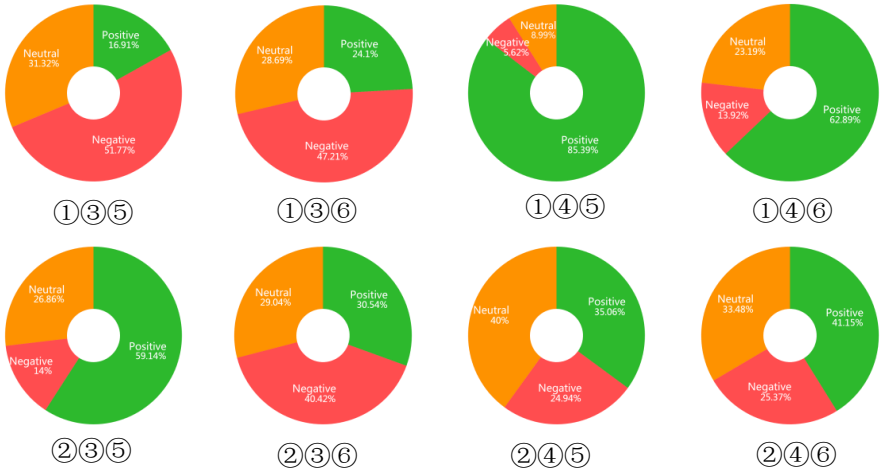

Figure 5: Sentiment analysis of eight scoped video reviews

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5. Discussion

When delving into the interactive dynamics of social media platforms, one striking phenomenon is that users are more likely to accept and agree with experts whose views, positions, or attitudes are in line with their own. This preference not only reflects the selective reinforcement of individual cognition in the social media environment but also reveals the psychological filtering mechanism in the process of receiving information. On the contrary, when the views of experts are contrary to the existing attitudes of users, users often show high resistance, and may even take the initiative to question the authority and professionalism of experts.

It is worth noting that even experts with a high reputation and perceived authority on social media platforms are not entirely immune to public skepticism. This is because social media gives users unprecedented access to information and freedom of expression, enabling the rapid spread and collision of diverse views. In this context, the public no longer simply relies on the certification of traditional authorities but tends to evaluate the authenticity and credibility of information through self-judgment and group consensus. Therefore, the remarks of even the most authoritative experts need to withstand extensive and in-depth public scrutiny and discussion.

Furthermore, users on social media platforms exhibit a "familiarity paradox" for experts in familiar fields. Specifically, as users accumulate and deepen their knowledge of a field, their recognition of experts in that field may gradually decrease. When users become experts in a certain field, it is more difficult for them to understand the confusion and needs of outsiders in the field, and then question the explanations and suggestions of experts. This finding challenges the traditional assumption that "knowledge popularization means trust enhancement", and emphasizes the challenge posed by the public's critical thinking and independent judgment to the credibility of experts in the age of full information circulation.

When delving into the complex information ecology of social media platforms, one phenomenon that cannot be ignored is that no matter what field of expertise experts belong to, their comments and opinions will inevitably be widely questioned by the public. This undifferentiated questioning phenomenon deeply reflects the uniqueness of information dissemination in the era of social media, and also reveals the public's increasingly cautious attitude toward authoritative information sources.

6. Conclusion

In the highly interactive environment of social media and the rapid dissemination of information, the construction and maintenance of expert credibility have shown unprecedented complexity. Firstly, there is a significant positive correlation between the expert credibility and the consistency of the attitude of the public and the experts themselves. On the contrary, if the opinions of experts are contrary to the attitudes of the public, it may cause resistance and doubt from users, and thus weaken its credibility.

Although the degree of specialization is one of the important indicators to evaluate the qualification and ability of experts, the relationship between this factor and the expert credibility is weak on social media platforms. Even authoritative experts who enjoy a high professional reputation in their respective fields are often not completely free from public scrutiny and doubt. This is mainly because social media gives users unprecedented access to information and freedom of expression, enabling the rapid spread and collision of diverse views.

There is a strong negative correlation between the expert credibility and the degree of public awareness. After social media users have a deeper understanding of a subject or field, they are more likely to independently evaluate expert statements based on their own knowledge and experience, rather than blindly accept them. As a result, even in areas with which users are highly familiar, the credibility of experts may decline relative to the level of public awareness.

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In addition, there is a weak correlation between expert credibility and the scope of the event. On social media platforms, it is difficult for experts in various fields to be completely immune from public questioning and scrutiny. This phenomenon profoundly reveals the uniqueness of information dissemination in the era of social media and the diversification and dynamic nature of public cognition of authority.

To sum up, the credibility of experts on social media platforms is not fixed but is affected by multiple factors. The above phenomenon requires us to fully consider the uniqueness of the social media environment and the diversified characteristics of public cognition when building the expert trust mechanism, so as to promote the healthy dissemination of information and the improvement of public scientific literacy.

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