

The Interaction between Douyin Opinion Leaders and Douyin Algorithms and Recommendation Mechanisms: The Spread of False Information

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Abstract: This paper explores the interaction between opinion leaders and algorithmic mechanisms on the Douyin platform, especially the process of false information dissemination. By analyzing the behavior of opinion leaders, this paper distinguishes between intentional and unintentional ways of false information dissemination. As opinion leaders on the platform, opinion leaders can influence the ideas and behaviors of a large number of users through posting, sharing or commenting, thereby accelerating the spread of false information. Douyin's recommendation algorithm and "recommend to friends" function, as the core mechanism of the platform, use user data to personalize content recommendations, further promoting the widespread dissemination of false information. This paper reveals the two-way interaction between opinion leaders and algorithms: on the one hand, the influence of opinion leaders strengthens the effect of algorithmic recommendations, and on the other hand, the algorithmic mechanism provides opinion leaders with a larger dissemination platform, prompting false information to spread rapidly in social networks. Through an in-depth analysis of these factors, this paper aims to provide a systematic understanding of the mechanism of false information dissemination on the Douyin platform and propose corresponding policy recommendations for the platform to govern false information.

Keywords: Opinion Leaders; Douyin Platform; Spread of False Information.

1. Introduction

Currently, with more than 400 million daily active users, Douyin, as China's largest online social media platform, maintains a leading position in the market. The rise of Douyin has not only attracted a large number of users, but also led to the emergence of the role of opinion leaders. Lazarsfeld, Berelson, and Gaudet defined opinion leaders in *The People's Choice*. They mentioned that information transmission has the characteristics of a two-step flow of communication, and opinion leaders are an important role in the two-step flow of communication [1]. They first come into contact with mass media information and then process it and spread it to others. In the current era of gradual transformation from traditional media to new media, every user has the possibility to independently create content and become a source of information, which blurs the boundary between opinion leaders and ordinary users. Therefore, the scope of definition of opinion leaders on social media platforms has become broader. At present, opinion leaders on the Internet are divided into two categories. The first category is the elite class, who rely on their authority and have a more direct influence and guidance on the audience, the other category is composed of some users who are more grassroots and have life experience[2].

However, this decentralized communication model also brings challenges. As the speed and scope of information dissemination increase, the spread of misinformation and disinformation becomes more uncontrollable. As Pierri and Ceri argues, Misinformation is defined as information that is inaccurate or misleading, whereas disinformation is considered false content that is intentionally spread with the intent to deceive people or promote a biased agenda[3]. These information has the power to influence the decisions of its

audience, change citizens' attitudes towards a topic, or even cause unnecessary panic[4]. They are usually highly inflammatory and have high forwarding rates in the online environment[5]. These negative impacts undoubtedly disrupt the information ecology of social media platforms. At the same time, the involvement of opinion leaders on Douyin has further exacerbated this problem. In recent years, the role composition of opinion leaders on online platforms usually has the following characteristics, such as public intellectuals with professional perspectives and ordinary people with grassroots backgrounds whose published content is close to the life patterns of ordinary people[6]. These opinion leaders often use their influence to quickly attract a lot of attention by publishing content that seems authoritative or has strong emotional resonance. On the Douyin platform, attention is closely related to income. As a result, this makes many opinion leaders pay more attention to the dissemination effect of content rather than the authenticity of information. Some opinion leaders may spread false information due to a lack of awareness of verifying information, while others may deliberately create or spread false information for profit in order to attract attention or achieve economic benefits.

The algorithm in the Douyin platform has also inadvertently contributed to this phenomenon. Douyin's recommendation mechanism is based on user preferences and browsing history to enhance user stickiness. However, this algorithm-driven content distribution model is prone to forming an "information cocoon", limiting users to information flows that match their existing views. This not only weakens users' exposure to different viewpoints, but also amplifies the risk of opinion leaders spreading false information.

This article aims to fill the research gap on the spread of false information by opinion leaders on short video platforms

and provide a new perspective in this field. Meanwhile, it explores the role of Douyin opinion leaders in the spread of false information and analyze the interaction between its dissemination mechanism, platform algorithms, and the impact on the audience. the research results can play a positive role in platform governance and media literacy education, helping them to formulate more targeted policies and education programs, and guiding users to improve their ability to distinguish the authenticity of information.

2. Opinion Leaders' Motivations for Spreading False Information

On the Douyin platform, key opinion leaders play a vital role in information dissemination. Whether they are authoritative opinion leaders or grassroots opinion leaders, the connection between them and netizens can greatly influence the dissemination and acceptance of information, including the spread of false information.

Opinion leaders with authoritative discourse often have a high social status or professional background. They have gradually established a certain trust foundation through long-term accumulation and demonstration of their knowledge and abilities. For example, professional doctors, well-known media people or industry experts have won public recognition through their authority and professionalism. On the Douyin platform, these opinion leaders as public intellectuals usually demonstrate their deep foundation in a certain field by sharing professional knowledge, analyzing events or providing unique insights, further enhancing the trust relationship with fans. This trust relationship comes not only from their professional ability, but also from the reliability and consistency they have demonstrated in their long-term interactions with the public. When the information released by these opinion leaders is consistent with the expectations or needs of netizens, netizens are more likely to regard them as credible sources and accept the content they disseminate. In contrast, grassroots opinion leaders from ordinary backgrounds have established close relationships through frequent interactions with the public. Such opinion leaders usually do not have prominent backgrounds, but they make netizens feel their intimacy and approachability by sharing personal experiences and daily life trivia, humorous content, and interaction with fans. This kind of people-friendly image and emotional bond with fans make grassroots opinion leaders have a high degree of trust among fans. Especially in some niche circles or specific interest groups, grassroots opinion leaders can more easily get closer to fans.

It is through this interaction between authority and affinity that they have successfully attracted the attention and trust of a large number of netizens on the Douyin platform, and thus become an important booster in the spread of misinformation and disinformation.

From the perspective of the motivations of opinion leaders in spreading false information, it can be divided into intentional fabrication and unintentional misinformation. Intentional fabrication is often driven by profit and is fabricated for specific goals and objects. Unintentional misinformation is when opinion leaders publish or forward unverified information, which leads to further promotion of false information.

2.1. Motivation for Intentionally Fabricating False Information

Before the explosive growth of short videos, the most common fraud method in China was telecommunications fraud, which deceived people with low defensive psychology through phone calls or text messages. When short videos swept in with great momentum, fake information became the embodiment of fraud. The fake information on these social platforms and previous telecommunications frauds have similar motivations and natures. First, their ultimate goal is to make a profit. Second, both fake news and scams share similar psychological tactics, technological pathways, and persuasion outcomes[7]. On the platform, opinion leaders who have multiple functions such as domination and guidance sometimes use false information to achieve the same effect as telecommunications fraud in pursuit of profit. One of their fraudulent methods is to spread false health information such as "pseudoscience" to attract widespread attention, and then lure the audience to buy products and become consumers. As Chinese people pay more and more attention to health issues, some users pretend to be doctors and become opinion leaders in the health field in order to attract attention and gain higher profits, providing users with some unverified "pseudo-scientific" knowledge. They even embed links to certain products in the lower left corner of the video to lure the audience to buy.

For example, some opinion leaders who claim to be "nutrition experts" often introduce so-called "magic recipes" in short videos, claiming that certain foods or health products can quickly lose weight, improve immunity, or even cure common diseases. In order to increase credibility, these opinion leaders often wear uniforms and pose as professional, and even insert purchase links for certain products in the lower left corner of the video to induce viewers to consume. Although these so-called "magic effects" have no scientific basis and lack professional clinical research support, due to the rapid spread of information, many people believe this information without careful verification and buy related products.

A specific case is that in 2019, on the Douyin platform, an opinion leader named "Doctor Li" became popular for posting a series of videos about health and wellness knowledge. On the homepage of her account, it can be clearly seen that the certification information is a doctor in the Department of Integrated Chinese and Western Medicine of a hospital in Ningbo City, and her fans are as high as 700,000. The videos she posted are mainly popular science. In the video, she is wearing a doctor's work clothes, explaining to netizens while writing medical content on the blackboard behind her. In order to show her medical professionalism, Dr. Li also talked about Chinese medicine tongue diagnosis. For example, how to judge tongue coating, tooth marks, cracks, etc., she also patiently drew pictures on the small whiteboard to explain. It gives people a strong sense of conviction. Usually at the end of these videos, Dr. Li will recommend some products. She took out her mobile phone and taught netizens how to place an order step by step. For example, she asked everyone to first open the product link at the bottom right of the video, then select the quantity package, and click the "Pay Now" button. At the same time, she did not forget to add a few words, "People with weak spleen and stomach remember to click on the link of product No. 10. Many fans bought it and sent me messages, praising the effect very well." Dr. Li relied on her

medical professional background and online influence to gain the trust of netizens. Since many netizens reported that the medicine she recommended was ineffective, this attracted an investigation by a reporter. When the reporter asked to see her medical qualification certificate, Dr. Li not only did not give a direct answer, but cursed and kicked the reporter out of the live broadcast room. This reaction aroused widespread attention and doubts from the public. In this incident, the authenticity of Dr. Li's identity and certification information became the focus. After investigation, it was finally found that "Dr. Li" was not a doctor in the hospital. This fact reveals that "Dr. Li" has the problem of spreading false information on the Douyin platform, and the main motivation of this part of opinion leaders who spread false information is to attract attention and sell their own products to create profits for themselves.

2.2. Opinion Leaders Unintentionally Spread False Information

In addition to those cases where false information is intentionally spread for personal gain, opinion leaders on Douyin may also inadvertently spread false information due to their failure to adequately verify the information. As the scholars argue that motivations that allow false information to spread—sometimes intentional, but sometimes unintentional [8]. They also mention, sharing this information is sometimes seen by the public as their duty to actively help others, especially on issues that are considered to be of public concern, and therefore they feel that the information should be shared regardless of whether it is fully verified[8]. This kind of situation is particularly common on social media platforms, especially in an environment where information is updated very quickly. Opinion leaders are often forced to process a large amount of messages and information in a short period of time, and even publish content without enough time for detailed verification. For example, on May 6, 2024, a blogger named He (male, 56 years old, from Pengxi County) published a false message through the Douyin platform. The specific content is: "A major news event happened in the past two days. A family in a community in Chengdu fell asleep while charging and playing with their mobile phones in bed, causing a fire. In this incident, a 32-year-old young man was burned to death." He also attached some online pictures below the text. In the end, the public security organs in Chengdu and Suining verified that this information was false information. The cause of this incident was that He saw an online picture in the WeChat group on his mobile phone. Without confirming the authenticity of the content, he posted the online picture with his own fabricated text through his Douyin account (the number of followers of his Douyin account exceeded 10,000) to the Internet, attracting netizens to pay attention, forward and like. His behavior was identified as an illegal act of spreading rumors.

In summary, opinion leaders on the Douyin platform often face difficulties in verifying information during the process of information dissemination, especially when the amount of information is huge and the speed of dissemination is extremely fast. Although some opinion leaders may not intentionally spread false information, they may still inadvertently exacerbate the spread of false information due to failure to conduct sufficient verification. As shown in the above cases, the spread of false information may not only mislead the public, but also cause widespread social panic and even bring legal consequences.

3. Douyin Algorithm and Recommendation Mechanism

On the Douyin platform, opinion leaders can quickly attract a large number of fans and promote the widespread dissemination of content through their powerful influence. The personalized algorithm recommendation mechanism based on user interest and behavior data and the "recommend to friends" function of the Douyin platform further exacerbate this phenomenon. Guo and Wang mentioned the personalized algorithm of the Douyin platform. They said, "Douyin captures and analyzes the social activities of users during use. Browsing behavior and attitudes are integrated with user metadata to form a 'user personal portrait', and content is accurately distributed through the analysis of the 'user portrait'[9]." This means that the platform will push content that users may be interested in by analyzing data such as user viewing history and interaction records. The algorithm mechanism restricts the freedom of user information selection and even determines what users see and like. It also continuously cultivates users' addiction to product use in the process of system update and improvement. When opinion leaders publish content, their huge fan base and high interaction rate become the key factors of the platform algorithm's "recommendation mechanism". In addition, the "recommend to friends" function of Douyin is a social function provided by the Douyin platform. This function allows users to recommend their favorite videos to their friends. When watching a video, users only need to click the "Recommend to Friends" button in the lower left corner of the video, so that all friends in the user list can see the content as soon as they use the Douyin platform. Through the "Recommend to Friends" function, users can not only share the content they are interested in with their friends, but also enhance the interaction and social connection with their friends. This functional design not only improves the activity of the platform, but also increases the communication opportunities between users.

However, these two functions undoubtedly provide favorable conditions for the spread of false information. The platform's algorithm enhances the user's immersion and interactivity through precise push, amplifying the spread effect of false information. At the same time, Douyin's "Recommend to Friends" function further exacerbates the risk of false information spread. When a user thinks that a video content is interesting or valuable, it is easy to share it with his social circle based on personal interest and trust. In this process, false information is spread in a more implicit way, because the source of information comes from the user's friends or close social relationships, rather than other users of the Douyin platform.

Overall, the opinion leaders of the Douyin platform play a vital role in the spread of false information under the interaction with the Douyin algorithm mechanism and the "Recommend to Friends" function. Opinion leaders usually have a large number of fans and strong communication power, and their voices can often have a significant impact on the audience. Under the algorithm's recommendation mechanism, the content published by opinion leaders, especially content with false or misleading information, may be quickly amplified and spread to a wider audience. For example, when a well-known blogger publishes a video with false information, the platform's algorithm will further push the content to more users based on its high interaction volume and

fan base. Users with common views form a closed social circle on the Internet, and after clicking the "Recommend to Friends" option, false information spreads rapidly and becomes more solid.

3.1. The Impact of Douyin Platform Algorithm on the Spread of False Information

The scholars cited the *Guardian's* article "Social media filter bubbles and algorithms influence the UK election" and the *Observer's* article "The main problem is not fake news but bad algorithms". They used these two examples to illustrate that the reason for the spread of false news is bad algorithms[10]. The intervention of algorithms has led to users finding that when using the Douyin platform, the platform is full of push content similar to the videos that users are interested in, which exacerbates the problem of "information cocoon". It allows users to be constantly solidified by their own interests, reduces the opportunity to contact multiple things, and narrows the scope of users' information acquisition.

In this context, it provides an excellent space for the spread of false information. The spread of false information is by no means accidental, but the product of the interaction between the algorithm mechanism and user behavior. The negative impact of false information is often enhanced by algorithms. Because algorithms push content that triggers emotional resonance and has strong topicality, false information often spreads more quickly through this "emotional manipulation". For platforms like Douyin, the spread of content with short video characteristics is more influential, because these contents can attract users' attention and stimulate users' interaction in a short time. This feature makes the spread of false information on the Douyin platform more permeable and explosive.

At the same time, Douyin will recommend users' favorite content based on their preferences. In the long run, it is easy to lead to the homogenization of information sources, thereby causing the homogenization of the received information content, and indulge in this single recommended video content, self-isolation from the colorful information world outside, causing the "information cocoon" phenomenon. In the "information cocoon", Douyin users can come into contact with a large number of people with the same interests and hobbies as themselves, and communicate with others through comments, likes, reposts, and sharing, thus forming a social circle with the same group views. Users gradually become isolated in this environment, ignoring or rejecting content that is inconsistent with their own views, which easily forms cognitive bias and misleading, allowing false information to be reinforced in the "information cocoon".

3.2. The Impact of Douyin's "Recommend to Friends" Feature on the Spread of False Information

Douyin's "Recommend to Friends" function promotes the spread of information through social relationship chains. When users find that a video content arouses their interest or resonance, they often recommend it to their trusted friends. This way of communication based on social relationships means that information is not only recommended by the platform's algorithm, but also relies on the trust network among friends. In this case, the speed and scope of information dissemination are greatly expanded, and false information is also easy to spread rapidly in the circle of trust.

Unlike traditional algorithm recommendations, social recommendations are more "intimate" and "credible", making false information more difficult to identify and resist.

Secondly, this function of Douyin has also greatly enhanced the influence of opinion leaders. In the social recommendation system, opinion leaders with a large number of fans and a wide social network can quickly influence their fans and friends by sharing content. When these opinion leaders share a video, the content can not only be quickly seen by their fans, but also spread to a wider social circle through the fans' "Recommend to Friends" function. Especially on certain hot events or controversial topics, the opinions and recommendations of opinion leaders can often directly guide the direction of public opinion, and even guide the public's cognition and emotions without fully verifying the authenticity of the information.

However, this influence also makes it easier for false information to be further amplified through the spread of opinion leaders. For example, some false news or misleading content, if shared by well-known figures or Internet celebrities, tends to spread rapidly in a short period of time. Because there is "trust" behind this information, many users may not question its authenticity, and may even participate in secondary dissemination.

4. Conclusion

Overall, the emergence of social networking platforms has greatly enhanced the channels and efficiency of users' access to information, but it has become a hotbed for the spread of false information. For the social networking platform Douyin, the interaction between its algorithm mechanism and opinion leaders has profoundly affected the path and speed of false information dissemination. Douyin's recommendation algorithm promotes the rapid spread of information through precise "user portraits" and interest matching, but this mechanism also inadvertently provides unlimited possibilities for the spread of false information. Opinion leaders, with their influence and fan base on the platform, are more likely to amplify their dissemination effects through the platform's algorithm recommendation, so false information can quickly enter the field of vision of a wide audience. Although this information may be exaggerated, distorted, or even completely wrong in content, it can still gain high attention in a short period of time with the help of the algorithm recommendation mechanism and the influence of the opinion leaders themselves.

However, the Douyin platform is not just a tool for the dissemination of false information, and its algorithm mechanism also has room for optimization. The platform can reduce the spread of false information by strengthening the review and screening of information sources. In addition, enhancing users' media literacy and critical thinking and improving their ability to identify false information is also an effective way to deal with this problem. As the manager of a digital platform, Douyin has the responsibility to protect the free flow of information while also shouldering the social responsibility of preventing the spread of false information.

In the future, with the continuous optimization of algorithm mechanisms and the evolution of information dissemination methods, the challenges faced by Douyin and other social platforms in the governance of false information will become more complex. We have reason to believe that with the collaboration of technology, supervision and social forces, the spread of false information can be effectively curbed, and the

information ecology on the platform will be healthier and more orderly. Through the combination of technological innovation and ethical responsibility, Douyin and other social platforms will be able to build a more credible and beneficial virtual space while providing rich and diverse information.

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