

Risk analysis and countermeasures brought by algorithm recommendation technology to mainstream value guidance

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Abstract. With the wide application of algorithm recommendation technology in commercial media platforms, the gatekeeping theory of traditional media information dissemination has been subverted, and the value standard of "content is king" has been replaced by the business logic of "traffic first", which may cause information cocoon, induce group polarization, intensify value differentiation, cause dilution of mainstream value discourse, and even cause ideological risks. In the era of intelligent media, media platforms can safeguard the "ballast" status of public opinion of mainstream value discourse and better play the guiding role of mainstream value by strengthening platform social responsibility, optimizing algorithm technology and enriching the communication forms of mainstream value.

Keywords: Algorithm Recommendation Technology; Mainstream Value Guidance; Media Platform; Intellectual Media

1. Introduction

At the time of customized information and intelligent communication, algorithm recommendation has become the standard of almost all software such as information service platform, search engine and social software. The current popular media platforms including TikTok, Kuaishou, WeChat Channels, Toutiao, Little Red Book, Sina Weibo, etc., all use algorithm recommendation technology. With the great success of algorithm recommendation technology in the commercial media platform, the commercial media algorithm aiming at the pursuit of user acquisition is becoming an important factor affecting the cyberspace information environment and the order of information dissemination, and subtly influencing the mainstream value to play a guiding role.

2. The platform algorithm recommendation changes the order of information dissemination.

In the traditional information dissemination order, the mainstream media has the absolute advantage of information resources and communication power, and is the radiation source of mainstream value guidance. Information is usually professionally processed and polished by humans, and information that is of universal significance to most people will be screened out in a point-to-point way with the standard of "content is king". This information transmission mode solves the social distribution of authoritative information.

However, algorithm recommendation technology is changing this unipolar information transmission pattern, and the audience that was originally regarded as a whole is divided into fresh individual users. This kind of customized fission transmission is a decentralized and flat information transmission pattern. In terms of operation mechanism, algorithm recommendation is a technology that uses technical coding and computing programs to obtain user information preferences, and then realizes accurate matching and distribution of information, which is inherently embedded with the speculative logic and value system of the design subject [1]. The platform algorithm recommendation follows the business logic of "traffic first" in the information transmission path, and gives priority to pushing popular content produced by the platform and information products catering to users' preferences in line with the principle of interests first, thus subverting the original order and principle of information transmission under the gatekeeping theory of traditional media.

3. Risk Analysis

The change of information dissemination mode in cyberspace has enhanced the uncertainty of the dissemination of mainstream value discourse. As early as 2017, the *People's Daily* network has repeatedly issued three reviews of the algorithm recommendation, reminding that the algorithm also has values, pointing out that we can not let the algorithm decide the content, and the algorithm recommendation may lead users to be trapped in the information cocoon, so we must be wary of algorithms going the opposite direction of innovation. As for the impact of the change of information dissemination pattern caused by algorithm recommendation on the guiding role of mainstream values, the academic community mostly studies from the perspectives of news communication, technical ethics, political security, and law.

3.1 Filter the mainstream value discourse and create an information cocoon.

The update iteration of algorithm promotes the improvement of platform information communication technology. Although there has been controversy about the idea that algorithm recommendation leads to information cocoon, most scholars' research on the generating mechanism of information cocoon is inseparable from algorithm recommendation. Yu Guoming et al. pointed out that algorithm is power and believed that the execution of such power would inevitably lead to ethical dilemmas[2]. He Yang et al. believed that algorithm technology would allow the platform to continuously push the interest points of specific time nodes to users, making users trapped in the information cocoon[3]. Liao Miyan et al. pointed out that the reason for the information cocoon is that the content distribution model driven by the algorithm will affect the audience's independent choice of media information products[4].

The algorithm recommendation technology can generate data profiles of individual users and push information that meets their preferences to users. Mainstream value discourse is often serious and heavy, and users may be more interested in non-mainstream content under the drive of various psychology. In the long run, the information received by users is constantly narrowed, and the preferences and prejudices of users are constantly solidified, which intensifies the tendency of individuation in group social cognition and eliminates the tendency of commonality. The resulting information cocoon will create an information gap between different subjects. Once the mainstream value discourse is filtered outside the "information island" by the "filter bubble", the audience can only contact the non-mainstream value discourse content without being aware of it. At the same time, the "filter bubble" created by the algorithm recommendation has shaped the "one-dimensional people" in cyberspace, who have shrunken values and beliefs, lack the discernable eye for right and wrong, and are less able to resist anti-mainstream, anti-system, anti-intellectual thoughts and behaviors[5]. When users are used to and addicted to the convenience brought by algorithm recommendation technology, they are also unconsciously dominated and manipulated by it, becoming the "prisoner" of the algorithm.

3.2 Induce group polarization and intensify value differentiation.

The Crowd: A Study of the Popular Mind written by the French social psychologist Gustave Le Bon, on the basis of mass psychology and group effect, proposes that individual participants in group events tend to lose their ability to think independently, and lose their individual personalities when they are swept up by group emotions. In the field of algorithmic recommendation, people constantly receive content that matches their interests and values, which will subjectively make users constantly get a sense of identity. In fact, these contents are only "echoes" that will solidify the existing cognition and strengthen the existing viewpoints. However, as these echoes from the online world continue to appear, people are exposed to a large amount of content that is homogenized with their own interests and value preferences, which gradually strengthens their identity and forms a relatively closed information loop space. Under the personalized information dissemination pattern, users' originally scattered and hidden demands for non-mainstream and personalized information products are

gradually revealed, and the originally neglected massive long-tail demand can be highly adapted. The "echo chamber" effect continues to strengthen users' existing identities, excluding diversified values and opinions, and eventually induce group polarization.

At the same time, the distribution of algorithms also leads to the Matthew effect of information dissemination. Taking the *Jiang Ge* case as an example, in the post-truth era, the media used one-sided truth to construct an illusion of "Liu Xin deserves to die", while the real murderer Chen Shifeng became the beneficiary of public opinion. In the low-age social media public opinion environment and the highly asymmetric algorithm recommendation field, extreme and emotional voices are constantly encouraged, and their voices become louder and more powerful. While those scientific, rational and moderate voices have been constantly suppressed or even cyberattacked, becoming weaker and weaker, and those sober people have finally become more and more silent and compromised under the effect of the spiral of silence model. In trials by media, public opinion and some media challenge the underbelly of justice again and again and interfere with social fairness and justice. Therefore, algorithm distribution will intensify the value differentiation among social individuals and damage the mainstream value of social fairness and justice.

3.3 Dilution of mainstream value discourse by entertainment and fragmented communication.

As algorithmic recommendation realizes the re-evaluation of the value of information, the value of information is no longer uniformly measured as it was in the traditional media period. With the departure of journalistic professionalism, the negative effects of the complicated public opinion arena are constantly overflowing. Compared with the relatively serious and authoritative mainstream value information, the information on commercial media platforms, which are less related to public affairs and knowledge gain, are more likely to be favored by the general public due to their popularity and fun. In the era of intelligent media, due to the loss of the "gatekeepers", it is inevitable that historical nihilism, network consumerism, and pan-entertainment will be mixed in the communication content of mixed good and bad. All kinds of shocking and clickbait news emerge in an endless stream, and more chaotic network live broadcasts repeatedly break the bottom line of content dissemination. If the network platform allows false, vulgar and anti-mainstream information content to spread and makes preference recommendations based on it, all kinds of non-mainstream value content will have the effect of "bad money driving out good money" in the process of information transmission without boundaries.

In addition, the fragmented mode of communication dilutes the value rationality of mainstream discourse. In the context of fragmented information, the integrity, continuity and seriousness of the expression of traditional mainstream discourse are affected, and the value rationality such as responsibility and ideal contained in it is diluted by the fragmented information that blindly caters to users' preferences. The spiritual connotation and serious significance carried in the expression of mainstream discourse are diluted, and the appeal and guiding role of mainstream values are also dissipated. This has also led to the general public's tendency to think superficially, and it is very easy for them to have different degrees of prejudice or misinterpretation of the content and significance of mainstream value discourse.

3.4 Potential for ideological risk.

Marcuse once explicitly put forward the idea that science and technology become ideology. Habermas's understanding of this is more systematic and comprehensive. He believes that scientific and technological consciousness enables the materialized mode of science to penetrate into a wide range of social life, and appeals to objective rationality with its own power to oppose the reflection and criticism of reality. Because the construction of algorithmic recommendation technology is based on human rational thinking, the design subject in the process of developing algorithms will inevitably be embedded in certain values, standards and practices, forming "algorithmic discrimination" or "algorithmic black box". Then, in the process of media platforms distributing information on foreign

values, cultural views, lifestyles and other aspects, it will affect users' beliefs, identities and prejudices, and imperceptibly shape people's ideological cognition.

With the generalization of domestic information production subjects and information distribution platforms, the living space of mainstream media, which originally bore the burden of disseminating mainstream ideological discourse, has gradually narrowed under the squeeze of various new media, and the dominant force of mainstream ideological discourse has declined. Commercial media platforms uphold "traffic first" rather than "content is king". When the information distributors and gatekeepers are no longer professional journalists, eye-catching entertainment information and advertorials will crowd out the transmission channels that should belong to government news, and the popularization of mainstream ideological discourse will be restricted. At the same time, the advent of the algorithm era makes the ideological expansion of western capitalist countries more hidden and efficient. As an important weapon for the West to export its ideology strategically to China, technological hegemony is the inevitable result of the monopoly nature of digital imperialism[6]. At present, algorithm recommendation has become a hegemonic advantage for Western hostile forces to export their ideology to China. Some western capitalist countries rely on their advanced science and technology and talent advantages to covertly intervene in China's algorithm recommendation system procedures, create and push information that undermines the discourse power of mainstream ideology and set negative issues. They attempt to infiltrate and manipulate the people's minds and promote hegemony of discourse by means of conspiracy theories, interfering with the public who have weak discernment and are eager to obtain the truth, thus creating an opinion ecology that is not conducive to the construction of mainstream ideological discourse power and trapping the public into an algorithm trap.

4. Suggestions for responses from media platforms

4.1 Strengthen the Platform's social responsibility.

The *Regulations on the Management of Internet Information Service Algorithm Recommendation* issued by the National Cyberspace Administration and other four departments has been implemented since March 1, 2022, reflecting the country's attention to platform governance and guidance. The regulations require algorithm service providers to adhere to the mainstream value orientation and strictly prevent the negative effects such as the induction of addiction by algorithms. Therefore, all platforms must strengthen their own sense of social responsibility and enhance the consciousness of serving mainstream values and maintaining social public order and good customs. The organic integration of content orientation and users' preferences is not only the pursuit of mainstream media platforms, but also the common pursuit of all media platforms. For example, the news from CCTV have long been in the top position of "Top Stories" column of WeChat, covering important news such as policy release, large conferences, leadership activities, disaster prevention and reduction, etc., guiding users to pay close attention to state affairs and people's livelihood. While meeting users' personalized needs, it also allows them to dabble in the hot news that can reflect the mainstream values of society and the common concern of the whole society.

Media platforms should strengthen the responsibility of editors-in-chief and continuously enhance their role as gatekeepers and auditors. In order to let the audience truly experience the richness of cultural products, media can consider opening up content columns based on the combination of manual recommendation and algorithm recommendation, so as to achieve the coordination and unification of ideology, artistry and commercialism. For example, in addition to the "Guess Your Favourite" column, a column entitled "What You Need to Know" can also be opened for the purpose of delivering content containing mainstream values. Commercial media platforms can also jointly build a mainstream discourse transmission matrix with official mainstream media, synergically and efficiently integrate mainstream value information into the content recommendation pool of commercial platforms, and reduce the interference of audiences by information cocoon, filter bubble

and echo chamber effect, so as to receive more and more discourse information containing mainstream value.

4.2 Optimize algorithms with mainstream value orientation.

Media platforms need to consider the commercial value of products in the design of algorithm rules, but also need to recognize the social value of the media industry in the cultural leadership. In order to use mainstream values to guide algorithm technology, first of all, we must comprehensively correct the defects of algorithmic recommendation. In the specific practice, we can combine technical means with manual means to strengthen the check of information transmission path. Taking the information service platform Toutiao as an example, as early as 2018, Toutiao announced the recruitment of 2,000 content review editors, shifting to a combination of human and machine. Toutiao also established a rule model for detecting clickbait to prevent authors on the platform from engaging in clickbait behaviour.

The CCTV algorithm has made a demonstration to standardize the commercial media algorithm. The reference system of the CCTV algorithm has three axes: mainstream value, artistic value and commercial value. Since it began to be applied in the China Media Group Mobile in 2021, the CCTV algorithm has continuously optimized the form of information presentation by means of small step iteration, man-machine collaboration, and crowd classification, helping the audience to get out of the information cocoon and promoting more benign and diversified content ecology generation[7]. Therefore, each media platform can improve the ethics and value setting of algorithm recommendation by integrating the mainstream value orientation into the internal code ranking and calculation priority design, gradually improve the priority of mainstream ideological discourse distribution and push, and increase the weight ratio of positive energy recommendation algorithms. In this way, mainstream discourse information can be prioritized or promoted to encourage the production and dissemination of mainstream values.

4.3 Let the dissemination of mainstream value discourse better capture the audience's attention.

It is far from enough for the dissemination of mainstream value discourse in society to rely only on the unilateral power of the messenger, but also to give full play to the initiative and creativity of the audience to accept and participate in the dissemination, so as to maximize the cohesion of the communication force and give play to the guiding role of mainstream value. On the recipient side, the young group, which accounts for a large proportion of the audience, should be paid special attention, because the young generation is often willing to express and good at expressing. More importantly, under the guidance of mainstream value discourse, they will gradually become interested in current political commentary, put forward their own opinions according to the issues, and expand the production of consensus through the exchange of views. It is helpful to realize the infiltration and diffusion of mainstream values from the official public opinion field to the civil public opinion field. First, all media platforms should continue to provide high-quality content, expand the content resource pool, and capture the audience's attention with more and better content. Second, it is necessary to enrich the mainstream discourse communication forms, such as short video, live broadcast, H5, vlog, etc., which are all currently popular mainstream value communication forms. Third, to carry out innovative communication, we can use the communication habits of the younger generation to replace the thick and abstract text according to the style of different media platforms. Fourth, the creation of copywriting should have new ideas, be creative in layout, subtly transform the mainstream value discourse into conscious social cognition, and truly exert its long-term guidance power while capturing the audience's attention.

5. Conclusion

Xi Jinping has clearly pointed out: "We must strengthen the sense of urgency and sense of mission, promote the independent innovation of key core technologies to continuously achieve breakthroughs, explore the application of artificial intelligence in news collection, production, distribution, reception, and feedback, use the mainstream value orientation to control the algorithm, and comprehensively improve the ability to guide public opinion." The influence of algorithm recommendation on individual, society and country is all-round. In order to deal with the risks brought by algorithm recommendation, it is necessary to regulate the rule of law, strengthen the social responsibility of media platforms, and counter the algorithm with technical force. At the same time, the users of media platforms should also pay attention to improving their own algorithmic literacy, have the ability to think independently and make rational judgments, and consciously avoid the "algorithm trap" and "information swamp". In the new stage of development, it is hoped that the thinking of this paper can help some media platforms to continuously standardize and improve, and safeguard the "ballast" status of public opinion of mainstream value discourse with the help of algorithm recommendation technology, so as to promote the mainstream value of society to play its guiding role more effectively.

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