The Impact of Content Heterogeneity on the Process of Science Communication: We Media under the Pandemic

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Abstract: Previous studies did not subdivide science communication content, and different popular science content has completely different communication logic. We Media also plays different roles in communicating different popular science content. This article will use the COVID-19 pandemic as an example to introduce how We Media spreads popular science content with different roles. This paper argues that the content of science communication significantly impacts the process of science communication. Science communication content can be divided into empirical science, policy interpretation, and emotional catharsis. And the position or ideology can influence the communication process, which can be reflected in the tension between the government and We Media. At the same time, according to science communication content, this paper also distinguishes the vertical We Media, the hot comment We Media, and the organizer. Finally, this paper combs the analytical framework of government, the media, and the public.

1. Introduction

We-media is a new media type, but it is limited to accounts with media attributes that individuals (or organizations) operate independently on various platforms. The most important difference from traditional media organizations is that, in most cases, the operators of self-media have only obtained the identity certification of the platform and are not eligible for Internet news gathering and editing. Early forum users, bloggers, personal Weibo writers, and personal (or organization) WeChat public accounts. Today's mobile Internet era is all self-media based on the information technology revolution.

Nowadays, most traditional media are adapting to technological changes and transforming in the direction of new media. In this shift to new media, traditional media rapidly diverged. The highest level of traditional media still has strong agenda-setting and guiding ability today. In the mobile Internet era, the discourse weight of news organizations, which are the mouthpieces of the national political machine, has not decreased but has been strengthened. However, after the transformation of most media, due to the high homogeneity and specialization of information distribution, they are often bleak on new media platforms. For example, during the outbreak of the gene editing scandal of Chinese scientists and the COVID-19 pandemic, most professional media reprinted news released by traditional media endorsed by the state, with fewer original articles and comments. They expressed the same viewpoints, focusing on the event's progress. And ethical issues. We-media, on the other hand, has a lot of freedom and room to play, dare to ask questions, and discuss the issue at different levels according to the characteristics of their respective platforms so that the reporting angles are more diverse and the breadth and depth of topics are expanded. Previous studies have also focused on the crucial role that we-media plays in disseminating diverse information. For example, the form of self-media is no longer restricted to graphics and text, and content creators can freely use various presentation forms on the platform, from traditional graphics to audio, video,

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animation, etc. At the same time, some researchers pointed out that the content and interaction of we-media are more open. Based on the characteristics of lag in supervision and platform certification, we-media is no longer limited by prior news self-discipline and supervision in content creation but boldly breaks through the content specifications of some traditional media, such as typesetting requirements, title production, and writing style. At the same time, the self-media platform also provides functions such as commenting, forwarding, and replying to content, making the interaction between content creators and readers more flexible and diverse. Thirdly, most self-media choose vertical market segments with clear reader groups and business demands. After subscribing to content, readers are more inclined to read content in subdivisions, and advertisers are more willing to place advertisements to precise customers.

However, few studies have emphasized the importance of we-media in science communication. Previous studies believed that the emergence of we-media accelerated scientific communication speed and broke the intellectual elite's monopoly on truth and truth. For example, self-media has effectively promoted the improvement of PUS, and the government has encountered considerable difficulties in implementing policies due to a general lack of scientific and technological knowledge. Therefore, the advocates of PUS argue that the solution to the problem of policy legitimacy is to let the “ignorant” public understand science so that it can play a better role as a citizen[1], which is the “missing model “ of PUS. The model of public participation in scientific decision-making is described as a model of “expert participation, interaction with non-experts, and understanding by non-experts.” However, the research also shows that: different from the situation envisaged by the government that “the more scientific knowledge the public has, the more they understand and support scientific and technological decision-making,” the public gets more scientific information, on the contrary, they have more reflection on scientific and technological decision-making, and more Question the uncertainty and risk of technological decision-making. In essence, the missing model does not eliminate the flaw of administrative officials as the technical elite and thus cannot save the “legitimacy” crisis of the elite decision-making model. The emergence of self-media has promoted the development of PUS to a new stage. The public is no longer regarded as pure ignorance, nor is it a passive recipient of scientific and technological decision-making. That is, the public's doubts and resistance to scientific and technological decision-making are no longer considered to be a manifestation of a lack of scientific knowledge but a manifestation of the public's active defense of their rights in producing and applying scientific knowledge. The public's local knowledge also helps to promote scientific decision-making. They also focus on whether the self-media in the risk society abides by the news ethics norms authoritative media organizations have complied with in the past in science communication. For example, health and risk communication is a process by which the public is supposed to provide information to reduce anxiety and panic and advice to help them cope with crises. Effective risk communication can quickly improve people's awareness and skills in preventing and responding to public emergencies, eliminate unnecessary panic, and maintain social stability. However, some self-media deliberately distort the truth and spread fake news to pursue traffic and profit. At the same time, self-media will give audiences a “mimetic environment” of “world danger” through many reports about risks, crises, crimes, and violence.

However, previous studies only analyzed the context of general science communication without realizing the tension between the contents of popular science. Different popular science content has completely different dissemination logic, and we-media also plays different roles in the dissemination of different popular science content. For example, we must admit that when the government promotes specific projects that may have potential harm to the environment, it promotes its safety from raw materials, technological processes, or environmental indicators on the self-media platform. There is a big difference between this form of popular science and the popular science that publishes gene editing or disease transmission from the media. Past research has not established a complete framework to describe the tension between differences in popular science content. At the same time, we have also noticed that we-media cannot be used as a general concept. Some professional popular science content requires a high threshold of knowledge. Therefore, we

have also noticed that we-media created by some scholars and academic journals plays an essential role in science communication. This article will use gene editing scandals and the pandemic as examples to introduce how We-Media disseminates content from different disciplines with different roles.

2. Classification of Popular Science Content

When COVID-19 occurred, a large amount of information appeared on the Internet. We can not regard it as unity. The impact of spreading different content is different. In general, information can be divided into three categories: empirical science, policy interpretation, and emotional catharsis.

In the empirical science category, the dynamics of medical publications are mainly divided into three stages. In the first stage, the focus is mainly on the prevalence, incidence rate, and transmission rate of COVID-19. The viral load is related to the severity of the disease, the combination of treatments, and the effectiveness of different treatment schemes. In the second stage, the focus will be shifted to the analysis of the affected population's immunity, antibody level, and asymptomatic characteristics. In the third stage, most attention was focused on different available vaccines, vaccination schemes, their therapeutic effects, the prediction of new infection waves, and the origin of new varieties[2]. We Media often need to quote authoritative biomedical journals such as The Lancet and also need to show data sources for readers' evaluation. There are few ideological interventions here, such as the mutation of COVID-19 pathology, and some extremists tend not to criticize such communication because it is difficult to understand. Because of its high professional threshold, We Media often visually presents some professional terms and infection mechanisms. At this time, the debate focuses on research limitations and competing assumptions[3]. The debate on the reproducibility of the data on the COVID-19 epidemic in medicine is puzzling. The acquisition of medical knowledge and the quality of information depend more on “data quality” than “data quantity”. A large number of COVID-19 reports that emerged in a short period of time showed that even the most advanced statistical and computing tools could not well overcome the problem of poor data quality. Due to data problems, many studies on the mechanism, transmission, prevention, and control of COVID-19 are challenging to reproduce, and even contradictory conclusions appear[4]. It is difficult to find a concise way to describe the complexity of the propagation mechanism from limited data in an interpretable way. Therefore, we media are faced with significant uncertainty in communication choices. We cannot fully believe in authoritative journals because ideological penetration is possible. They are also academic papers published by authoritative journals with substantial influence[5]. We media can choose more articles with communication identity and completely ignore other contrary evidence (i.e., the choice of not communicating is also a communication behavior). The influential We Media's interpretation and dissemination of COVID-19 can use public sentiment to influence the government's decision-making. Here, the contradiction between the government and the Media is shown for the first time.

On the other hand, although journal editors provide strict peer review opportunities in academia, the Media itself is not highly academic, so distorting data analysis and causal inference is easy. Even traditional media are prone to make such mistakes. Such misreading can easily be further distorted into rumors in communication. At this time, rumors have been greatly simplified compared with authoritative journals because it has enhanced comprehensibility and operability. The public without evidence-based medicine training is more inclined to believe these rumors than obscure medical journals. For example, in COVID-19, some rumors suggest drugs that do not affect what drugs can alleviate symptoms, and linked them with some well-known experts and authoritative journals to enhance credibility. This forced the government to respond more formally at the press conference. At the same time, the media, whose major is to break rumors, began to emerge.

In the category of policy interpretation, We Media often plays the role of interpreting the hot policies issued by the government. All kinds of government documents, from the central government to local governments and rules and regulations of different industries, also confuse the public. It is important to explain them in plain language. The focus here is on epidemic prevention

policies. The epidemic prevention policies of various countries are controversial. If the government wants to promote epidemic prevention policies, it must explain the policy basis and details to the public. At this time, the media's accurate interpretation of the motives behind the government may cause tension between the media and the government. The interpretation is divided into two parts. The first part is more objective. The decoding process requires the media to deliver the operable definition of the policy to the public realistically. The second part is about the motivation of government governance and the analysis of policy stability. These predictions will affect people's confidence in policies. For example, we media think that the strict blockade policy is not only for epidemic prevention services but only for officials to please the superior leaders. At this time, this specific blockade policy will weaken the credibility of the government and reduce the expectation of policy stability.

Moreover, the contradictions between the policies of the central government and those of local governments found after sorting out can also be confusing. The policy interpretation category also includes legal analysis. The changes and applications of labor law, criminal law, and other laws related to the epidemic are somewhat different from the government's policy interpretation. Case studies and law article analysis are professional work. Although the debate in the legal community is the same as in the medical community, thanks to court decisions and professional lawyers, We Media and the public can still find a definitive action logic.

The contradiction between the media and the government has peaked in the emotional catharsis category. This meets the needs of some We Media traffic orientation and has no obstacles in understanding. It is easy to find a wrong policy and unfair phenomenon in the epidemic to play up emotions. Some We Media do not explore facts but only perform the function of comments. The government is worried that the media has weakened its ability to publicize to the public. The researchers will focus on whether we media in the risk society abide by the news ethics that the authoritative media institutions followed in the past in science communication. For example, the original purpose of health communication and risk communication is to provide the public with information to reduce anxiety and panic and suggestions to help them cope with the crisis. Effective risk communication can quickly improve people's awareness and skills to prevent and respond to public emergencies, eliminate unnecessary panic and maintain social stability[6]. However, some We Media deliberately distort the truth and spread false news in order to pursue traffic and profit. At the same time, We Media will also give the audience a “pseudo environment” of “world danger” through a large number of reports on risks, crises, crimes, and violence.

3. The Role of We Media

There are many subdivisions of We Media, but we can be divided into three categories according to the content of communication: vertical We Media, hot comment We Media, and organizer. We Media plays completely different roles according to different content creation. Suppose they create content based on serious empirical scientific content, policy interpretation, and legal consultation. They are generally limited to a single field, and this kind of Media is called Vertical We Media[7]. We Media in vertical fields have accumulated strong discourse power and explanatory power in professional scientific fields. They often have rich expert resources and are familiar with Internet communication's discourse and channel strategies. Clear audience orientation and whole interaction have increased the arrival rate of We Media science popularization. People have corresponding reading expectations for We Media science popularization in similar events. The discussion space built by We Media also helps to promote public discussion and improve the actual effect of science popularization[8]. Nowadays, more and more professional journals, academic publishers (e.g., Springer, Wiley, etc.), and scientific research work create accounts on the platform to directly promote science to professional readers or the public, which undoubtedly enhances the ability of science communication. The other kind of We Media makes hot comments[9]. People often have vague feelings about what is happening in society but do not have solid written skills to express them. This kind of We Media can often act as the representative of the people. For the We Media as the organizer, their value lies in sorting out the works created by others[10]. In other words,

accepting the way of obtaining information as an “organizer” is a prerequisite for later integration. Therefore, in this sense, the “organizer” must first be the “receiver.” However, it is not entirely equivalent to the mechanical copying of the information by the “reproducers”. The “arrangers” also shoulder a critical mission, that is, in the process of information absorption, to systematically process the original information to achieve its value added. “Manual sorting” sometimes brings about the problem of an “information cocoon room”[11]. The concept of an information cocoon room was put forward by Keith Thorstein, which means that the organizer constructs his information field purely according to his interests and confines himself in the cocoon like a silkworm chrysalis[12]. This practice of focusing solely on personal preferences and ignoring what other people think will not only easily lead to a disconnection between individuals and society but also make society become a simple aggregation due to the weakening of its overall category. At this time, the emergence of “machine integration” makes up for this defect. In the policy interpretation category, the documents issued by the government from top to bottom can be collated for a complete understanding of the people, and the government's inconsistent policies can be easily found. When people want to know about hot events, we media also sort out the timeline based on existing data, increasing understanding efficiency.

4. Conclusion

Previous studies did not subdivide the content of science communication. This paper argues that the content of science communication significantly impacts the process of science communication. Science communication content can be divided into empirical science, policy interpretation, and emotional catharsis. And the position or ideology can influence the communication process. At the same time, according to science communication content, this paper also distinguishes the vertical We Media and the hot comment We Media.

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