

## **The Temporal and Spatial Bias of Information Flow on New Media Platforms during Covid-19 Pandemic**

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**Abstract:** Since December 2019, a new infectious disease, "corona virus disease" (COVID-19), mainly lung lesion, has been emerging in China. The outbreak of covid-19 coincided with the Chinese New Year in 2020. The rapid spread of the disease triggered public panic and an overwhelming number of news reports on new media platforms. However, information does not always equate with the way of communication. The communication bias happened in the flow of information. This paper takes the information flow about covid-19 before 26<sup>th</sup> December, 2020 as a model, and compares the time of information flow in the early development of the epidemic with the approach of Edmund Carpenter's "explorations in media and anthropology" and Harold A. Innis' "the bias of communication". The bias of time and of information delivered during the pandemic is examined. The study further focuses on the reflection and response of Chinese new media platforms and information platforms towards the public opinion management.

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**Keywords:** corona virus disease 2019 (COVID-19), the bias of time and space, new media transmission, media preference, public opinion governance

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### **Introduction**

This paper examine the information flow on Chinese new media platforms and the information flow of the public about covid-19 before 26<sup>th</sup> December, 2020. Furthermore, the research compares the time of information content release in the early stage of the epidemic, and analyzes the temporal bias and spatial bias of information transmission with the perspective of the "media bias" of Carpenter and Innis. With the approach of Carpenter and Innis, the temporal and spatial bias of information transmission is explored.

On 26<sup>th</sup> December, 2019, a patient infected covid-19 was reported in Wuhan, Hubei Province, China. The new infectious disease, which is predominantly a lung disease, coincided with the holidays of Chinese Lunar New Year in 2020. The rapid spread of the epidemic triggered information flow on new media platforms. Information has different articulation of reality. As basic media for the transmission of ideas, the description of reality may be different with diverse perspectives. The author argues that there is inevitably a certain degree of bias and differentiated descriptions during the information transmission under the epidemic. The research questions about the bias of time and space towards information flow on new media platforms and the specific influences of the media bias on the public opinion are examined in the study.

### **Literature discussion**

In "The Bias of Communication". Innis discusses media with two broad categories, time continuity and space extension. However, the communication messages delivered by media may sometimes contain bias in accordance with time or space. It is states that when media encounter certain circumstances, the different representation of

time and space, embedded in power relation. It may change the cognitive attitudes of message receiver, the public. It is argued that the information flow at the beginning of the epidemic coincided with obvious bias of time and space. Carpenter notes that anything may be delivered with sufficient words and language. The nature of information flow may include bias due to cultural issues. During covid-19, it is indicated that the information that audience got access may be restricted by the bias of time and space. This study adopted the perspective of temporal and spatial bias towards the information delivery in the early stages of the outbreak.

### Results and Discussion

#### The Temporal Bias of Official Media Reports

Information transformation and interaction in digital era no longer mainly depend on the medium owner, but on the control over time delivering the message. Innis discusses "Plea for Time" and uses time bias as a research approach for culture and communication. His attention towards the temporal bias in the transmission of information is a way to analyze the dominant information and the embedded socio-cultural issue. He indicates that the influence of the media on public opinion is not unrelated, but the bias of time approach is effective to examine the limit of civilization. Nowadays, the more rapid dissemination of information has been, the more information has been available, and the easier it has been for the public to access. Especially, the increase of information technology generates a wide range of communication activities. However, Innis in "Changing Concept of Time" debates with Wyndham Lewis's "Time and Western Man", and argues that Lewis's viewpoints towards time is lack of the continuity. Nevertheless, it is stressed that whenever social affairs encounters with the factor of time, the complexity may be occurred. Under the epidemic, information disclosure is the way to ease the disease. If the information cannot be delivered due to the lack of time, the "temporal bias" in information transmission affects the credibility of the communication process.

#### THE SPATIAL BIAS OF INFORMATION FLOW

Innis's "The Bias of Communication" published in 1951 at the University of Michigan, in which he presented the study that has become the most famous theory of his own. It is stressed that space has its external outreach. Innis argues that the bias of communication has an impact on society, and spatial bias of the media may create the distance. During covid-19 pandemic, the interpersonal spatial bias of transmission, the emotional spatial bias of rumor transmission, and the intelligent spatial bias of information dissemination, may be the concept of "spatial bias" mentioned by Innis.

#### Interpersonal Spatial Bias of Vias Transmission

In epidemiological models, the R0 value is often used to describe the rate of transmission of an outbreak, which can reflect the severity of an infectious disease outbreak. If the R0 value is greater than 1, the risk of human-to-human transmission increases; if the R0 value is less than 1, the infectivity of the virus tends to disappear. For reference, the R0 value of SARS in 2003 was 2.9, rising to 3.5 during the outbreak period. It is indicated that covid-19 has a strong infectious transmission.

#### EMOTIONAL SPATIAL BIAS OF RUMOR PROPAGATION

It is stated that rumor is inaccurate information spreading among the public. It is not confirmed by officials at the time of dissemination. Rumors are often produced, processed, and recreated by individuals and societies to spread geometrically to achieve social effect. In the book Rumors, a formula, rumor = (event's) importance x (event's) ambiguity, is proposed<sup>1</sup>. Based on the above discussion, it is clear why rumors generally occur in the "information vacuum" in relate to "important events". Based on the current number of rumors and the speed of spread, the rumors during Covid-19 period, are much higher than during SARS. In digital era, it is more convenient and faster access to information sources than in the SARS era. New media social platforms make the transmission of news more rapid than usual. The transmission and interaction of information is intended to break the "information

vacuum" of the rumor formula.

Gao Fu, director of the Chinese CDC, at a conference held by the State Council Information Office, said that "panic can cause the damage. In the case of an epidemic, the public panics and believes rumors, and the consequences may be as worse as those caused by the epidemic itself ". For the general public, the virus attacks their bodies; the rumor attacks their minds. In "Empire and Communication", Innis. argues that we need to develop or improve an administrative system that can examine the bias of communication. Civilization has limits to its communication, and the spatial bias of communication makes the limitation of civilization<sup>2</sup>. With the inclusion of the term "post-truth" in the Oxford Dictionary in 2016, MacDonald points out that emotional bias is increasingly the dominant factor in guiding public opinion as truth and logic are constantly ignored and misunderstood in the process of information dissemination. Innis's "spatial bias" suggests that in the post-truth era, both media organizations and the public are gradually showing the bias of "emotional-driven message". In the post-truth era, both the media organizations and the public of the messages are gradually becoming "emotional- driven".

According to previous research in social psychology, only socially recognized that "authorities" have the ability to "fight rumors" through accurate and sufficient information. The credibility allows the public to believe that authoritative discourse is equivalent to revealing the truth. However, at the beginning of the outbreak, the rumors spread by new media platforms and individuals were influenced by the emotional spatial bias of information. The research collected 20 widely circulated rumors about COVID-19 and analyzed the timeline. See Table 4: "Information table of rumors about the novel coronavirus pneumonia pneumonia (COVID-19)".

In information society, everything is connected, and rumor or uncertainty result in the public's fear and anxiety. When the epidemic first broke out, the public could not fill their emotional space with the information they received, and rumors followed one after another. Most of the rumors circulated at the beginning of the outbreak around the type of virus, and whether the virus spread from person to person. For example, the rumor circulated on 1<sup>st</sup> January, 2020. It was "the unidentified pneumonia outbreak in Wuhan has been confirmed to be the new SARS virus". The rumor circulated on 2<sup>nd</sup> January, 2020, was "suspected infectious patients were found on flights out of Wuhan". The rumor circulated on 5<sup>th</sup> January, 2020, was that "the new pneumonia has been confirmed to be the new SARS virus", "SARS has struck Wuhan again and more than 3,000 cases have broken out". The rumor spread in the absence of full knowledge of the epidemic of the public. The majority of people who experienced SARS in 2003 were afraid of the "SARS virus" that swept through China. The rumor of the new coronavirus used the concept of "SARS virus" to build up the public's fear of the virus again.

Novel coronavirus pneumonia has a tendency to be "human-to-human", and rumors circulate with "human-to-human" bias. For example, the false information circulated on 18<sup>th</sup> January, 2020, it was "Wuhan medical staff infected with new coronavirus, many doctors died". On 22<sup>nd</sup> January, 2020, it was "the Health Commission of Wuhan's leader infected with new coronavirus pneumonia and fled to Shanghai ". On 23<sup>rd</sup> January, 2020, the spread of false information was "Wuhan family of three was diagnosed with new coronavirus pneumonia after a trip to Disney. "Behind these rumors are the fears of each person about their own situation and the possibility of falling into a crisis at any time. In addition, after Wuhan announced its "city closure" on 23<sup>rd</sup> January, 2020, different versions were circulated. First, on 25<sup>th</sup> January, false news of "Sichuan highway closure" was spread. On 26<sup>th</sup> January, Gansu and Hangzhou came out some versions of the rumors. On 30<sup>th</sup> January, "Ajinomoto can prevent the virus" and on January 31, "Taking azithromycin tablets can prevent the new coronavirus" were spread. Combing the rumors spread during the epidemic, it is argued that bias in the transmission of rumors due to the fear of virus prevention and misinterpretation of epidemic control.

In response to this, on 22<sup>nd</sup> January, 2020, Hubei Province initiated a Level II emergency response for public health emergencies. According to the relevant provisions of the Prevention and Control of Infectious Diseases

Law of the People's Republic of China, the pneumonia situation of new coronavirus infections in the province was released by the provincial health and wellness department, and the Wuhan Health and Wellness Commission no longer released the pneumonia situation of new coronavirus infections in the city. Two days later, on 24<sup>th</sup> January, the General Office of the State Council made a major move to publicly solicit. Then on 25<sup>th</sup> January, the General Office of the State Council cooperated with WeChat to add an epidemic reporting system. The public can directly report to the State Council's "Internet + Inspection" platform through the WeChat about local issues, as well as suggestions to improve and strengthen the prevention. At the same time, the National Health Commission of the People's Republic of China joined with Alipay and this enhanced the public's confidence in the official figures. At the same time, the state strongly supported online, self-media platforms, such as Ding Xiang Yuan, Tencent's True Disinformation Platform and Eight Points Health New. Along with the state's determination, the number of rumors is decreasing, and the public has regained confidence in the official media's information broadcast. It also reflected the progress of the Chinese government's response to public health events after a 17-year compared to the period of SARS.

### Intelligent Spatial Bias of Information Distribution

Innis has taken radio and electricity technology as a further extension of the mechanical technology paradigm, which spreads over miles, covers vast areas, breaks boundaries. However, radio medium appeals to human ear. It emphasizes on the spatial binding of the eye and the temporal binding of the ear, and thus to liberate emotional bias in space. The consequences of the new communication media manifested themselves in the outbreak of the Second World War and intensified as the war progressed. The military used it for combat and propaganda against the enemy<sup>3</sup>. In the digital age, access to information is no longer just radio and television, but is gradually being transformed into "intelligent media" led by artificial intelligence technology, which is manifested in an increasingly intelligent spatial bias in the distribution of information.

However, the intelligent spatial bias of algorithmic intervention in information distribution has been accompanied by the discussion of "good" and "evil". While the infiltration of artificial intelligence into information content production has brought about great changes, it has also faced ethical questions. While media technology is reconfiguring the news production process, its development is not neutral and has deep ideological properties. The values and worldviews of the constructors who design, receive, and maintain the technology are inevitably reflected in the technology itself<sup>4</sup>.

On 8<sup>th</sup> February, the industry's news broadcast began to try the combination of "artificial intelligence + epidemic notification" prevention and control mode, with the support of cloud supercomputing capabilities and computing clusters to collect and update confirmed and suspected cases of novel coronavirus pneumonia, and to feed the epidemic information to the news production center through the integration of big data information. Yellow River News, a key news website in Shanxi Province, first accessed the Phase Core Technology AI virtual anchor to quickly broadcast the latest epidemic for the province's citizens. It connects to the big data to obtain the epidemic information and input the relevant text to the epidemic newsletter, then it can quickly generate the broadcast video for the epidemic notification.

Manuel Castells argues that along with the heterogeneous rise of the information economy, space is not a certain territory but a material support for simultaneity and selected time<sup>5</sup>. Information distribution under smart space is dependent on algorithms and the availability of big data, instead it is easy to ignore the bias of smart algorithms themselves. If there are errors in the initial data input or the possibility of causing bias, then the final output of the algorithm is likely to be biased. At the beginning of the design of an algorithm, the initial settings of the algorithm's laws, data selection, result output, and value judgment reflect the programmer's own perspective and viewpoint. The designer's stereotypes and personal biases can affect the objectivity of the algorithm data. The

intermediate process between data input and result output is not understood by the recipient of the information, thus creating an "algorithmic black box"<sup>6</sup>. It is undeniable that information dissemination in major public health events requires the role of a "gatekeeper" in the process of data collection, prediction and decision making. The concept is also different from the traditional definition of news production, in which only journalists or media organizations can act as "gatekeepers" of news content. The gatekeeping of information in an intelligent space should be a process of multi-disciplinary and interdisciplinary collaboration.

### Conclusions

As of 26<sup>th</sup> December, 2020, a year has passed since the sudden outbreak of the new coronavirus pneumonia. However, it is worthy of acknowledging that China's national effort to fight the epidemic of the new coronavirus has achieved a milestone victory to the satisfaction of the public. Looking back at the information conveyed since the outbreak, the country has made progress in disclosing information about the new coronavirus compared to the SARS epidemic 17 years ago. In addition, an analysis of the spatial reliance on communication under the epidemic shows that rumors have the same spatial bias of "person-to-person" compared to viruses, not only in terms of interpersonal or regional spatial circulation bias, but also in terms of audience emotional catering bias in the post-truth era. In major public health emergency, the timeliness of information and the accuracy of sources are particularly important. In the same way, researchers are aware of new viruses, and new media journalists are also going through a process of understanding the selection of information. As the official media, they have the obligation to deliver information to the public in a timely manner after receiving the latest information sources to avoid unnecessary misinformation caused by biased information report. In this paper, with the perspectives of the media bias of Carpenter and Innis, it is recognized the concepts of spatial-temporal bias in the new media communication medium. The pain we have experienced not be condensed into a collective memory, but also become the process of the country's development and progress.

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Table 1: Table of rumor information about novel coronavirus pneumonia (COVID-19)

S/N	Release Date	Information content
1	2020/1/1	The outbreak of unexplained pneumonia in Wuhan has been confirmed as a "new SARS" virus
2	2020/1/2	Suspected infectious patients found in Wuhan outbound flights
3	2020/1/18	Wuhan health care workers Wei infected with a new coronavirus, many doctors sacrificed
4	2020/1/22	Wuhan Health Commission leader flees to Shanghai after contracting novel coronavirus pneumonia
5	2020/1/24	Hubei TV host reporter wearing a mask to broadcast the news
6	2020/1/25	Sichuan highway closure
7	2020/1/26	Tomorrow morning at four o'clock Hangzhou aircraft sprinkling disinfectant, we do not go out
8	2020/1/28	Virus likes 0 degrees wet and cold environment, air conditioning to 20 degrees will die
9	2020/1/30	Marigold can prevent viruses
10	2020/1/31	Used masks disinfected in sterilizer can continue to protect against new pneumonia
11	2020/2/3	The gene fragments inserted by the novel coronavirus have been carefully selected to be artificial viruses
12	2020/2/5	Fresh air systems can spread viruses that can lead to infection with novel coronavirus pneumonia

[Data source: Tencent True Disinformation Platform]