Public Awareness of Reservoirs and Dams in the Social Media Era: A Case Study on the Dissemination of the 'Three Gorges Dam Deformation' Rumor

Abstract :

A rumor about Three Gorges Dam deformation caused much concern in the global dam industry in 2019. The widespread rumor demonstrated that the public lacks knowledge of reservoirs and dams, an issue that constitutes a long-standing social problem. In the social media era, mainstream and social media have formed a Dual Discourse Context. Meanwhile, the public often forms incorrect conclusions about dams based on their own individual experience. Such rumors tend to align with existing, widely held beliefs and thus resonate and spread freely. This paper analyzes the background to the rumors and the reasons that coalesce to create such hearsay, formulates taxonomy for the spreading of erroneous information through different channels, and examines the roles played by various subjects in communicating the information. This article argues that engineering communications should adhere to the objective laws of the social media era, and form a discourse system that conforms to the public's consumption behaviors for social media to create differentiated yet overlapping discourse spaces. This paper also proposes that high quality engineering communications could be deployed to adjust the relationship between engineering and the public and create a sound environment that is conducive to the orderly progress of engineering activities.

Keywords: Three Gorges Dam deformation rumor; dual discourse context; engineering communications; discourse competition

Introduction

On July 1, 2019, a rumor claiming that the Three Gorges Dam had bent and was at risk of collapse appeared in the court of public opinion. The rumor was traced back to a post by a Facebook user that was based on Google Earth images that had been stitched together. The Facebook post was refuted by professionals who referred to meteorological conditions, imaging equipment and satellite imaging algorithms to show that the stitched together image was not indicative of the dam's condition. Despite repeated clarifications by dam industry experts, the rumor continued to spread for nearly half a year, sparking widespread concern across a wide variety of socio-economic groups. On the one hand, dam industry experts, scientific research institutions and mainstream media refuted the rumor; on the other, members of the public aired speculations on the dam and raised questions about the rumor on social media platforms.In the social media era, diverse forms of media have reconstructed the ecology of social discourse, and formed a "Dual Discourse Context" between mainstream and social media platforms. Based on existing beliefs and individual experience, the public has formed various and erroneous conclusions about reservoir dams. These conclusions are based on personal experience and/or are due to a lack of rational analysis and tend to align with the public's existing beliefs and therefore resonate, resulting in them spreading freely. The widespread rumor about the Three Gorges Dam clearly demonstrates that the public's awareness dilemma is a long-standing social problem. From this starting point, this paper explores ways to improve the public's understanding of reservoir dams in the social media era.

Methodology and Analysis

With the proliferation of communication technology and the evolving communication environment, public's media consumption and their participation in discourse have increased greatly. The traditional news narratives delivered by mainstream media organizations is gradually being supplemented by information released to the public through social media. The academic community believes that these phenomena have resulted in a diversified discourse ecosystem and a dual space in which Chinese public opinion is formed, thus creating the "dual discourse context".

In contrast to the discourse comprising input from project owners, industry experts, and authoritative media that refuted the rumor, the public focused on the topic of dam deformation on social media platforms, and reactivated public discussion on related marginal issues such as sediment deposits, drought, earthquakes, immigration, dam safety and the democratization of decision-making processes. Conspiracy theories flared up during those discussions, further extending the reach of the dam deformation rumor.

Sound research relies on a scientific analytical framework. This paper utilizes the Three Worlds theory as its framework, and the spread of the Three Gorges Dam deformation rumor as a case study through which to analyze how rumors are generated and spread.In the mid-20th century, Karl Popper proposed the three worlds concept, comprising firstly the world of physical objects, second, the world of subjective experiences, and third, the world of objective knowledge. This paper shows that the generation and dissemination of the Three Gorges Project rumor reflects the three worlds and the interactions. This interactivity has both a material basis and spiritual expression, coupled and developed with the contemporary post-truth social discourse environment, and expressed in the form of competing discourse.

1.Cognitive barriers in professional fields

An important manifestation of the development of human civilization is the refinement of the social division of labor. As the saying goes: “Difference in profession makes one feel worlds apart." The precise social division of labor has led to the establishment of different professional fields, with knowledge barriers and cognitive gaps existing between various industries. The dam industry is a typical professional field in contemporary society. A lack of expertise and difficulty understanding related terminology pose great challenges for the successful promotion of scientific education and social awareness of reservoir dams to the public. The scientific explanation of "elastic deformation", proposed by some academics to clarify the rumor, was misinterpreted by some members of the public, sparking another backlash on social media.

2.Fear of uncertainty

Alport, Postman, Cross and others have successively put forward and developed the "rumor formula" to explain the way rumors work.The formula: Rumor = Importance (of the event) × Ambiguity (of the event) / Critical thinking ability of the public. The rumor in this case drew on authority and fear, caused panic, and created a favorable social discourse context to facilitate its widespread dissemination. Based on images taken from Google Earth, the creators of the rumor invoked fear of "dam collapse", causing panic in varying intensities among members of the public.

3.Flood panic in collective memories

Floods are a common natural challenge, and have occurred frequently in China. As an agricultural society for thousands of years, the history of China is also a history of humans dealing with floods. Frequent diversions of the Yellow River and the 1998 Yangtze River floods[1] imprinted panic of devastating floods onto the collective memory of the Chinese people. Clearly referring to "dam collapse", the rumor in this case reactivated collective memories of floods, especially among those in the middle and lower reaches of the Yangtze River, which enhanced the spread and destructiveness of the rumor.

4.Social media communication in the post-truth era

"Post-truth" means that "facts are less influential in shaping public opinion than appeals to emotion and personal belief." In the social context of "post-truth" times, the ideological trends of post-modernism, constructivism and relativism have significantly impacted public perceptions. Abundantly overloaded facts are selectively perceived and "cobbled together" as the "truth" of cognitive subjects, with each relating to individual emotions, experiences and feelings as the more important basis for judging facts. Due to a lack of effective control mechanisms in social media, the disseminators constructed the narrative framework, and distorted and dominated the discourse with inflammatory information and biased opinions.

5.Segmentation and competition in discourse systems

In the new media era, various social media have invigorated public opinion.

A diverse society will inevitably result in diversified discourse patterns. Different discourses are segmented into separate systems, which in practice often compete with each other with little common ground. The "Dual Discourse Context", formed out of the discourse segmentation between traditional media and social media, is a significant development. The "rumor refuting discourse", formed by project owners, experts and mainstream media, and the "rumor discourse", developed by the public on social media, deviate from each other and further segmented the discourse systems.

Conclusion and recommendations

Pubic awareness is integral to the socialization of engineering, and engineering communications that follows the laws of communication in the social media era is needed. This paper holds that engineering communications is about information transmission, value interpretation and image construction for engineering, which is an important part and runs through the whole lifecycle of engineering activities. Based on the aforementioned analyses of the causes and catalysts for the spread of the rumor based on the three worlds theory and rumor formula, this paper puts forward the following conclusion and recommendations:

1.Break down cognitive barriers with engineering communications

To enable the public to better understand engineering expertise, cognitive barriers need to be broken down through introduction, persuasion, guidance, explanation, demonstration, feedback, argument and other means. It would be beneficial to explain, demonstrate and defend engineering in terms of academic research, education and popularization through periodicals, forums, conferences and exhibitions. Meanwhile, hearings and briefings would facilitate negotiation, explanation and feedback with regards to engineering. It would also be helpful to implement public persuasion campaigns and expectation guidance with media-oriented interviews and public-oriented open house activities.

2.Reduce uncertainty through providing information

Information, one of the three elements that constitute the world, in parallel with matter and energy, results in the elimination of uncertainty. The rumor formula previously mentioned in this paper, also shows that lack of transparency in information provision would lead to more destructive rumors. Prompt, comprehensive and effective information provision from authoritative sources would eliminate uncertainty. From the project owner’s perspective, to eliminate the propagation path for rumors with sufficient factual information provision at each stage of any incident, it is necessary to establish a series of sound mechanisms, including processes for emergency monitoring, early warning, assessment, response, feedback and summary.

3.Cultivate the general public's communications ethics through discourse

The development of a society's overall critical consciousness would significantly reduce the credibility of rumors and lead to rumors being “stopped by the wise”. Objectively speaking, discourse on social media is in a state of disorder: participants have not yet formed a unified code of communication ethics, resulting in numerous exaggerations and distortions along with the dissemination of information. It is challenging for the public to cultivate critical thinking skills against the backdrop of inflammatory information and biased values. Judging from the development of the Internet, it takes long-term dialogue with participants to gradually form the ethics necessary for making judgments based on facts in discourse.

4.Enhance the publicity effect of social media through innovation

The new media era has its own unique laws of communication. It is necessary to enhance the publicity effect of social media through innovation to promote the move from "owner-centered" discourse to a "public-centered" one and the image-building of engineering. Engineering experts, third-party actors and key opinion leaders could also help set the agenda and make use of their status of authority and the celebrity effect to further convey objective information and the values and image of engineering, thereby promoting the social awareness and understanding of engineering.

5.Promote overlapping consensuses through discourse re-coding

The fundamental strategy of engineering communications is effectively interpreting to the public engineering's values and mission, which is to transform the world and serve society for the benefit of mankind though engineering activities. Since different discourse systems will naturally be formed around engineering activities, it is necessary to break down the boundaries of different discourse systems and re-code them to foster interactions between different spheres of public opinion, and to reach overlapping consensus among different discourse systems.

Jean-Noël Kapferer wrote that rumors were the oldest medium in the world. The destructive power of rumors is always proportional to the importance of related events. Great projects in ancient and modern China, and abroad, have been always accompanied by controversies and rumors. Judging from the history of reservoir dams, rumors are only one of the factors affecting public perceptions. In today's new media era, reservoir dams also face many challenges including environmental protection, resettlement and dam safety, which feature new characteristics when combined with social media. This paper argues that the socialization of engineering, focused on promoting public awareness and education, is of equal importance to the construction of reservoir dams. The academic community and dam industry should work together to engage in effective engineering communications, disseminating professional knowledge, well publicizing the social benefits of the dams and creating a sound atmosphere for the orderly progress of dam engineering activities.

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