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Verification of Two-Step Flow Model in the Process of City International Image Communication Based on Data Mining and Empirical Analysis

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Abstract: This study seeks to decipher the modus operandi of Shanghai's image portrayal to the audience through social media platforms, particularly Twitter. Leveraging the potency of big data analysis, the study scrutinizes the applicability of the two-step flow communication model in the communication of Shanghai's image. The findings highlight the cardinal role of opinion leaders in the image communication process, overshadowing the impact of mass media. The age-old phenomenon of two-step flow, wherein information trickles down from mass media to opinion leaders, appears to be fading away. Although mass media's tweets can potentially reach a broad audience, they do not necessarily captivate the attention of opinion leaders. Thus, the study underscores the importance of both mass media and opinion leaders in shaping Shanghai's image.

Keywords: two-step flow; opinion leader; mass media; social media; Twitter; Shanghai's international image

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1. Introduction

As a central node in international communication, the city plays a crucial role in reconstructing public perception and comprehension not only of itself but also of the broader nation. Therefore, it bears significant political, economic, and cultural implications. A prime example of this is Shanghai, a city that boasts a high level of internationalization within China. On 4 January 2018, Shanghai held a press conference to officially unveil the Shanghai Urban Master Plan (2017–2035), commonly referred to as the "Shanghai 203 Plan".

This plan addresses the opportunities and challenges confronting Shanghai by stipulating additional sub-goals beyond "Innovative City", "Humanistic City", and "Ecological City". It charts a strategy for Shanghai to nurture cultural exchanges and innovation on a worldwide scale, transform into a universally recognized tourist hub, and strengthen its exchange capabilities by utilizing universities, research institutions, and cultural creative enterprises. The blueprint also foresees Shanghai hosting over 40 culture festivals of worldwide influence by 2035, expected to draw an estimated 14 million outbound tourists annually. The frequent usage of the terms signifying global reach, namely "international" (195 times) and "global" (156 times), underscores Shanghai's dynamic participation in competition and dedication to amplifying its worldwide influence.

City image communication serves as an essential study field within the scope of global communication. It acts as a vital asset, enhancing the core competitiveness of a city. The process of broadcasting a city's image on a global scale is critical for its assimilation into the worldwide system and global discourse (Zhu and Zhang 2022). Additionally, it plays a key role in highlighting the competitiveness of a city brand and obtaining global resource allocation. With the swift progression of information technology and the surge

in social media usage, traditional modes of information dissemination at a worldwide level encounter significant challenges (Alemneh and Alemu 2021). This evolving scenario necessitates a re-evaluation and strategic shift of communication strategies to effectively navigate the emerging norms of information propagation.

In the context of intensifying competition among metropolises within the international arena, the swift proliferation of social media represents a complex, dualistic paradigm. On the one hand, it engenders novel avenues for the propagation of global city images. In contrast, social media platforms have eclipsed conventional mechanisms of information procurement, distribution, and assimilation, instituting a noteworthy divergence from traditional mediums. Substantial shifts in the political, economic, and cultural landscapes have dramatically reconfigured the environment and methodologies underpinning city image communication. Those contributing to the communication of city images at a global level are no longer exclusively traditional mass media entities and official communication agencies. This evolution underscores the criticality of studying global city image communication from dual perspectives. First, there is a burgeoning necessity to examine city image communication through the prism of social media; it is increasingly pragmatic to scrutinize the city image communication through the lens of social media (Liu et al. 2022), given its influential role in shaping perception. Second, it is imperative to understand the specific communication logic and characteristics requisite for effective city image dissemination within the milieu of social media.

In the quest to cultivate a "global city" image within the dynamic milieu of transnational communication, understanding the mechanisms of communication and guiding cities towards enhancing their global discourse becomes crucial. Confronting this challenge is paramount for Shanghai, as it strives to attain world-class city status. The study of city image communication on a global scale, especially in this emerging context, possesses considerable theoretical and practical implications for cities worldwide and the research field. It creates a bridge between scholarly insights and pragmatic applications.

Habermas, a notable representative of the Frankfurt School, is renowned not only as a leading scholar in public domain research but also as the pioneer of Communicative Action Theory. He posits independent public communication and public opinion as the most significant facets of the public sphere, which he asserts to be distinct from political construction and grounded on a legitimate foundation. Furthermore, he emphasizes their essentiality for political rights. Habermas describes the mass media as having an intrinsic mechanism within the public domain. However, he also notes the close ties traditional newspapers and advertisements share with corporations. The government wields considerable control over various media, including film and television, leading Habermas to argue that this form of the public domain has been subverted. In contrast, he contends that the cyberspace engendered by social media facilitates the transition from the ideal to the actual "public sphere" (cited by Bennett 2012).

Comprehending the communication mechanism of city image within social media environments is vital to the study of city image in social media. The process can be delineated into two main steps: the initial transmission of information, followed by the spread of interpersonal influence (Allahverdyan and Galstyan 2016). In the realm of social media, audiences are no longer merely passive recipients of information (Md Nordin et al. 2021). Due to the monopolization of information, it is often challenging for an individual media outlet or social media to accomplish one-way communication with the audience. In the context of social media, users are not just consumers of information but also its producers. Over time, the demarcation between sender and receiver becomes increasingly blurred, thereby enhancing individual autonomy and initiative in communication. This shift also stimulates and mobilizes the potential and enthusiasm for shaping and disseminating city image. When considering the city image as a whole, everyone has the ability to express a range of opinions and sentiments (Zhao et al. 2016). The primary actors in agenda setting are demonstrating a trend towards diversification. Compared to traditional mass media,

the city image that is constructed or even reimagined in this communication environment is more representative and authentic.

However, social media has redefined the role of individuals in communication across all traditional media and marketing systems. It has identified informal groups and their members, rendering them targetable. This has provided marketers and media agencies with access to opinion leaders, transmitters, and influencers, as well as a method for locating and influencing word of mouth. As suggested in the theory of Personal Influence, it can be argued that the social media user plays a critical role in determining whether a message will be disseminated and received favorably (O'Regan 2021).

2. Research Question

The two-step flow communication theory, as posited by Lazarsfeld, hinges on two key components: mass media and opinion leaders (Katz and Lazarsfeld [1955] 1964). These crucial elements shape the two-step flow model, which manifests primarily in the information dissemination process as "information flow" and "influence flow". First, information sources reach the opinion leader through mass media and then spread information to the public through the opinion leader. Two-step flow communication theory emphasizes the importance of interpersonal communication, especially the role of the opinion leader in the process of information communication. In his seminal work, "The People's Choice", Lazarsfeld reinterprets the concept of two-step flow communication through the lens of these two flows. However, in theory, social media has achieved zero-media information communication, the audience's access to information is growing exponentially, and the role of opinion leaders as "intermediaries" is being blurred and weakened. Nevertheless, scholars still hold different views and believe that the theoretical model of two-step flow communication can still be used to explain digital communication, especially the role of the opinion leader in social media (Carr and Hayes 2014). Pang (Pang and Ng 2017) found that the flow of wrong information in public emergencies is largely consistent with the two-step flow communication theory, and information flows to the public through the opinion leader. According to Tom O'Regan (O'Regan 2021), social media allows media providers and marketers to position and influence word of mouth. So, who is defining, influencing, or spreading the international "word of mouth" about Shanghai's image on social media?

3. Research Hypothesis

To ascertain whether a two-step flow communication mechanism operates within the process of communicating Shanghai's image through social media, it becomes necessary to conduct an in-depth analysis and discussion encompassing both "information flow" and "influence flow".

On one hand, with the continued evolution of social media, traditional mass media are also undergoing a digital metamorphosis centered on user engagement. By establishing official social media accounts and operationalizing content, they attract a larger user base and audience, thereby fulfilling one of the prerequisites for the existence of two-way communication on social media. Conversely, sources with a particular agenda, such as mass media, often grapple with issues of trust. Consequently, the task of information dissemination largely falls to opinion leaders during the process of Shanghai's image communication. These individuals are more likely to wield "personal influence" in the interpersonal communication stage through tactics such as evaluation, persuasion, and encouragement. Given these dynamics, two research hypotheses are proposed to investigate the existence of a two-step flow communication model in the communication of Shanghai's image on social media:

RH1: The mass media are the primary information sources for Shanghai's international image communication on social media;

RH2: Personal influence in social media communication regarding Shanghai's international image is greater than that of officially operated users, such as the mass media.

4. Research Method

To verify the existence of a "two-step flow communication" model in Shanghai's international image communication, it is necessary to verify the information flow from the mass media to opinion leaders and then to the audience. Wu et al. (2011) used Kwak et al.'s (2010) follower graph, Twitter's firehose, and Twitter list to verify the "two-step flow communication" model. From the research, it was found that, although mass media are the most active users, only a small number of ordinary users obtain information from the media, and the 20,000 elite users, who account for less than 0.05%, attracted nearly 50% of users' attention on Twitter. Like the "two-step flow communication" model, this result also emphasizes the importance of opinion leaders. However, do opinion leaders care what mass media care for? This is a prerequisite for the flow of information from mass media to reach the audience through opinion leaders, and the definition and determination of opinion leaders are closely related to specific research content. For the image of a city, it involves multiple dimensions, such as vision, behavior, and philosophy, which are reflected through massive data on social media. Therefore, as an effective tool for understanding the specific problems of the public (Lampropoulos et al. 2022), data mining has been widely applied in multiple disciplinary fields. Therefore, this study only focuses on the issue of Shanghai's image communication. Firstly, a system of influence indicators for opinion leaders was constructed, including two primary indicators and five secondary indicators. A sample of opinion leaders was selected and, at the same time, through data mining, the characteristics of information flow between mass media and opinion leaders were depicted and analyzed to infer the existence of the "two-step flow communication" model in the international image communication process of Shanghai.

5. Data Collection

Twitter, a microblogging platform known for its real-time status updates, boasts a feature of instant interactivity. Users can follow those they find interesting and share, retweet, comment on, and respond to engaging tweets directly. As Twitter increasingly becomes not only a daily news source but also a barometer of public sentiment to some degree, it proves a fitting platform for exploring two-step flow communication. Although the use of Twitter in China requires an application based on normal usage for ideological and national security reasons, this study is justified by the fact that it examines the international representation of Shanghai's image and takes English tweets with the keyword "Shanghai" as the object of study. This process is primarily composed of two stages: information flow and influence flow, where mass media and opinion leaders play significant roles, respectively. Within this context, the act of forwarding is integral to the dissemination process. Therefore, to investigate the two-step flow communication model of Shanghai's image communication on social media with scientific rigor, Twitter emerges as the appropriate research platform.

According to official statistics from the Shanghai Bureau of Statistics, the influx and outflow of visitors to Shanghai reach their zenith annually in March, April, October, and November. For this study, Python was utilized to scrape data from pages using "Shanghai" as the keyword for these peak months in 2019 and 2020. This process yielded 4,065,599 related tweets. Subsequently, 2,303,024 English tweets were filtered from this pool, and those set in privacy mode were excluded. The final dataset comprised 1,287,870 valid tweets and 38,277 comments in total.

For the selection of mass media, this study initially referred to the World Media Lab's list of the top 500 media outlets worldwide in 2019 and 2020, a choice that aligns with the data samples for this research. The aim was to analyze the communication of Shanghai's image within the sphere of social media. Results pertaining to mass media outlets that had not adopted Twitter as a platform were subsequently screened out, yielding a final sample data of 433 mass media outlets. In the peak months of March, April, October, and November for both 2019 and 2020, it was found that 49 of these media outlets had tweeted using the keyword "Shanghai".

6. Construction of the Opinion Leader Influence Index System

The concept of opinion leaders, as initially defined by Lazarsfeld, is rooted in mass communication. However, with the evolution of network technology, scholarly research has extensively examined the formation and characteristics of opinion leaders in cyberspace. Numerous studies suggest that opinion leaders in cyberspace typically exhibit high levels of engagement (Barberá et al. 2015). Nevertheless, due to the virtual nature and anonymity of the network, a significant discrepancy exists between cyberspace opinion leaders and their traditional counterparts. Opinion leaders in cyberspace are more interchangeable and can face credibility issues.

In this study, a system of indicators has been established to identify opinion leaders, specifically focusing on "trust" and "activity". "Trust" encompasses two sub-indicators: the number of followers and verification status. "Activity" is assessed through three indicators: the number of followers, duration of membership, and the number of posts (Table 1). This framework allows for a more comprehensive and nuanced understanding of the dynamics of opinion leadership in cyberspace.

Table 1. Evaluation index structure.

Target	First-Level Indicators	Second-Level Indicators	Type of Data	Source of Data
Impact indicators of opinion leaders —A1	Trust	Number of followers—A11	Quantitative Data	Delphi Expert Evaluation Method
		Certified or Not—A12		
	Activeness	Number of Follows—A13		
		Length of Joining—A14		
		Number of Posts—A15		

Following the construction of the indicator system, it becomes necessary to ascertain the relative significance of the five secondary indicators. In this study, five indicators are employed as evaluation factors, forming evaluation set A, which symbolizes the "influence of opinion leaders". More specifically, A = A1, with A1 = {A11, A12, A13, A14, A15}. Here, A11 denotes the number of followers, A12 signifies whether a user is verified, A13 represents the number of followers, A14 refers to the duration of membership, and A15 reflects the number of posts. The analytic hierarchy process was then employed to determine the weights of the aforementioned five indicators. Utilizing the Delphi method, the relative significance of each element in the hierarchy was quantified (Table 2). This method facilitated the calculation of the maximum eigenvalue and eigenvector of the judgment matrix, thereby ascertaining the weight of the hierarchy in relation to the previous level. Subsequently, the relative importance was ranked.

Table 2. Interpretation of scaled quantized values.

Scale (a_{ij})	Definition
1	Both elements are equally important
3	former is slightly
5	former element is obviously
7	the former element is much more
9	the former element is extremely important
2, 4, 6, 8	Compared with the two elements, the importance of the former element is between the calibrated standards
$1/(a_{ij})$	Inverse comparison of two elements

A judgment matrix A is constructed for each index based on the results and opinions of the comparison of experts:

$$A = \begin{pmatrix} a_{11} & \cdots & a_{a1j} \\ \vdots & \ddots & \vdots \\ a_{ij} & \cdots & a_{ij} \end{pmatrix} \tag{1}$$

The hierarchical single sorting is performed based on the A judgment matrix, and the importance of all elements in this layer relative to the previous layer's dimension is arranged. The weight vector is calculated using the square root method of Equation (1), and then standardized using Equation (2) to obtain the standard weight vector:

$$w_i = \sqrt[m]{\prod_{j=1}^{m} a_{ij}} \tag{2}$$

After obtaining the weight matrix Wi, the maximum characteristic root is calculated using Equation (3):

$$\lambda_{\max} = \frac{1}{n}\sum_{i=1}^{n} \frac{(AW)_i}{W_i} \tag{3}$$

Consistency analysis must be performed on each judgment matrix to ensure the constructed judgment matrix A is free of any logical errors. CR value is frequently employed as an indicator of consistency. When the consistency ratio CR < 0.1, it is generally considered that the consistency test is passed. The standard weight can be used as a weight vector; otherwise, the evaluation matrix A must be recalculated.

$$CR = \frac{CL}{RL} \tag{4}$$

$$CL = \frac{\lambda_{\max} - n}{n - 1} \tag{5}$$

RI can be derived from the random consistency index R.I. value table that Professor Satty compiled after running 1000 simulations (Table 3).

Table 3. Random consistency index.

Matrix Order	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.68	0.89	1.22	1.34	1.31	1.44	1.42	1.46

Table 4 displays the judgment matrix created by the five secondary indicators of the "opinion leader influence" indicator system. The consistency test CR value is 0.06 < 0.1, and the consistency of the evaluation matrix is satisfactory. The consistency test was passed, and the weight of this level to the overall goal is 100%.

Table 4. Subordinate-level judgment matrix of Twitter opinion leader influence.

Twitter Opinion Leader Influence—A1	Numbers of Followers—A11	Certified or Not —A12	Numbers of Follows —A13	Length of Joining —A14	Numbers of Posts —A15	Weight
A11	1	1/3	1/8	1/8	1/9	58.0%
A12	3	1	1/6	1/5	1	20.1%
A13	8	6	1	2	3	4.1%
A14	8	5	1/2	1	2	6.0%
A15	9	1	1/3	1/2	1	11.8%

In this study, a total of 1,287,870 valid Twitter tweets and 721,267 corresponding user accounts were collected. Min–max normalization is applied to standardize and normalize the five dimensions of the number of followers, whether to authenticate, the number of followers, length of joining, and the number of posts for 721,267 users. The distribution of influence scores for the user accounts is calculated by combining the scores for each dimension and their respective weights (Table 5).

$$x' = \frac{x - \min(x)}{\max(x) - \min(x)} \tag{6}$$

Table 5. Distribution of influence scores of the users' accounts.

mean	0.209440
std	0.055231
min	0.160000
25%	0.172000
50%	0.196000
75%	0.224200
max	0.840200

As shown in the influence score distribution table above, 25% of users' influence scores do not exceed 0.172, and 50% of users' influence scores do not exceed 0.196. The research sample for this study was comprised of 464 opinion leader users with a user influence score greater than 0.6; mass media accounts were excluded.

7. Data Analysis

This study obtained 1,287,870 Twitter samples, of which 307,403 were original tweets. According to the number of times each tweet has been forwarded, from high to low, the statistical categories are as follows: among the top 100 tweets, there are two original tweets from the mass media and 27 original tweets from opinion leaders. The top 1000 tweets include 17 original tweets from mass media and 149 original tweets from opinion leaders. Finally, there are 448 original tweets from mass media and 716 from opinion leaders among the top 10,000 tweets (Table 6).

Table 6. Distribution of mass media and opinion leaders' tweets. (Ranked by numbers of forwarding).

Type Rank	Mass Media	Opinion Leader
Top 100	2	27
Top 1000	17	149
Top 10,000	448	716

In March, April, October, and November of 2019 and 2020, 49 mass media released 5655 original tweets with the keyword "Shanghai", and opinion leaders released 4403 related tweets. Table 7 provides a compelling comparison of original tweets, divided into those forwarded by opinion leaders and those that are not. When an ordinary tweet published by the mass media is not forwarded by the opinion leader, the average number of times it is forwarded by the audience is 46.49. If the tweet published by the mass media is forwarded by the opinion leader, the average number of times it is forwarded by the audience is 349.85.

Table 7. Communication effect of mass media tweets (ordinary tweets/popular tweets).

Dimension \ Type	Each Original Tweet of Mass Media (Not Forwarded by Opinion Leaders)	Each Original Tweet of Mass Media (Forwarded by Opinion Leaders)
Average forwarding times	46.491736	349.853933
Average number of citations	13.061983	95.213483
Average number of comments	16.605462	150.269663
Average numbers of likes	165.187567	844.662921
Average forwarding times of opinion leaders	0	1.191011
Average numbers of forwarding after being forwarded by opinion leaders	0	12.41573
Average citations after being forwarded by opinion leaders	0	1.752809
Average comments forwarded by opinion leaders	0	7.067416
Average numbers Of likes after being forwarded by opinion leaders	0	54.662921

8. Discussion

By comparing metrics such as average forwarding times, the number of citations, comments, likes, and corresponding measures after being forwarded by opinion leaders, a fascinating narrative emerges, revealing the dynamics of influence in the digital realm. Firstly, it becomes apparent that the average number of times a tweet is forwarded, cited, commented on, and liked increases dramatically when the tweet is forwarded by an opinion leader compared to when it is not. This observation underscores the role of opinion leaders in amplifying a tweet's visibility and audience engagement, thereby affirming the pivotal function of opinion leaders in information dissemination on social media. The data suggest that opinion leaders tend to forward original content more than content that has already achieved considerable traction, implying their role as thought leaders who shape public opinion by injecting novel content into the discourse. Interestingly, even after subsequent forwarding by opinion leaders, the average metrics for tweets not initially forwarded by them remain zero. This pattern suggests that a tweet's perceived value is not retroactively enhanced by an opinion leader's endorsement. Instead, it implies that, for an endorsement to have an impact, it must coincide with the tweet's release. Conversely, for tweets initially forwarded by opinion leaders, all metrics display a substantial increase, reinforcing the idea that an initial endorsement by an opinion leader can substantially boost a tweet's reach and engagement levels.

This analysis contests the traditional two-step flow model of communication, which stipulates that information flows from the mass media to opinion leaders, who then disseminate it to the wider public. Instead, the data point to a more direct, influential role for opinion leaders in the information dissemination process, potentially circumventing the need for an intermediate mass media stage.

9. Conclusions

Based on the preceding analysis, it is clear that both mass media and opinion leaders hold unique roles in shaping Shanghai's global image. The traditional two-step flow model, featuring information moving from mass media to influential entities, appears to have diminished significantly. While mass media's tweets can promote widespread dissemination, they might not necessarily engage the interest of key influencers. This observation aligns with the diverse nature of cyberspace and the distinctive attributes of online opinion leaders (Kaplan and Haenlein 2010). Armed with access to first-hand information, these leaders may no longer depend heavily on data offered by the mass media.

Viewing from another angle, opinion leaders take on a pivotal, irreplaceable role in propagating Shanghai's image on a global scale. As a result, both research hypotheses 1 and 2 can be validated. The two-step flow communication model carries limited practical value in the process of broadcasting Shanghai's image worldwide. Instead, the sway held by

opinion leaders outstrips that of the mass media, underscoring the need to pivot attention towards them.

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References

Alemneh, Haileyesus Tessema, and Negesse Yizengaw Alemu. 2021. Mathematical modeling with optimal control analysis of social media addiction. *Infectious Disease Modelling* 6: 405–19. [CrossRef] [PubMed]

Allahverdyan, Armen E, and Aram Galstyan. 2016. Emergence of Leadership in Communication. *PLoS ONE* 11: e0159301. [CrossRef] [PubMed]

Barberá, Pablo, John T. Jost, Jonathan Nagler, Joshua A. Tucker, and Richard Bonneau. 2015. Tweeting from left to right: Is online political communication more than an echo chamber? *Psycological Science* 26: 1531–42. [CrossRef] [PubMed]

Bennett, W. Lance. 2012. The Personalization of Politics. *The ANNALS of the American Academy of Political and Social Science* 644: 20–39. [CrossRef]

Carr, Caleb T., and Rebecca A. Hayes. 2014. The effect of disclosure of thirdparty influence on an opinion leader's credibility and electronic word of mouth in two-step flow. *Journal of Interactive Advertising* 14: 38–50. [CrossRef]

Kaplan, Andreas M., and Michael Haenlein. 2010. Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons* 53: 59–68. [CrossRef]

Katz, Elihu, and Paul Lazarsfeld. 1964. *Personal Influence: The Part Played by People in the Flow of MassCommunications*. New York: Free Press. First published 1955.

Kwak, Haewoon, Changhyun Lee, Hosung Park, and Sue Moon. 2010. What is twitter, a social network or a news media? Paper presented at 19th International Conference on World Wide Web, Raleigh, NC, USA, April 26–30; pp. 591–600.

Lampropoulos, Georgios, Euclid Keramopoulos, Konstantinos Diamantaras, and Georgios Evangelidis. 2022. Augmented Reality and Virtual Reality in Education: Public Perspectives, Sentiments, Attitudes, and Discourses. *Education Sciences* 12: 798. [CrossRef]

Liu, Nuochen, Xiaohui Sun, Sha Hong, and Bowen Zhang. 2022. Reproduction, cultural symbolism, and online relationship: Constructing city spatial imagery on TikTok. *Frontiers in Psychology* 13: 1080090. [CrossRef]

Md Nordin, Shahrina, Ammar Redza Ahmad Rizal, and Izzal Asnira Zolkepli. 2021. Innovation Diffusion: The Influence of Social Media Affordances on Complexity Reduction for Decision Making. *Frontiers in Psychology* 12: 705245. [CrossRef]

O'Regan, Tom. 2021. Re-reading Personal Influence in an age of social media. *Continuum* 35: 437–54. [CrossRef]

Pang, Natalie, and Joshua Ng. 2017. Misinformation in a riot: A two-step flow view. *Online Information Review* 41: 438–53. [CrossRef]

Wu, Shaomei, Jake M. Hofman, Winter A. Mason, and Duncan J. Watts. 2011. Who says what to whom on twitter. Paper presented at 20th International Conference on World Wide Web—WWW '11, Hyderabad, India, March 28–April 1.

Zhao, Chuanjun, Suge Wang, and Deyu Li. 2016. Determining Fuzzy Membership for Sentiment Classification: A Three-Layer Sentiment Propagation Model. *PLoS ONE* 11: e0165560. [CrossRef] [PubMed]

Zhu, Ziyuan, and Chao Zhang. 2022. Analysis of the Relationship between National Image Building and International Communication Ability from the Perspective of Ecology under the Media Environment. *Journal of Environmental and Public Health* 2022: 9393446. [CrossRef] [PubMed]

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