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Full Length Article

Relationship cultivation and public engagement via social media during the covid-19 pandemic in China

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ABSTRACT

This study explores the relationship cultivation strategies and disaster social media functions Chinese companies used to maintain relationships with their publics during the COVID-19 pandemic. Public engagement was assessed using a multi-dimensional construct consisting of cognitive, emotional, and behavioral measures. A quantitative content analysis of 756 Weibo posts from China’s Fortune 500 companies and 553 top user comments formed a data set that was analyzed using three types of regression analysis. Results showed that both relationship cultivation strategies and disaster social media use effectively increased engagement between Chinese companies and their publics, although on different levels. Although generally underutilized by companies, the access tactic in the relationship cultivation strategies significantly predicted all three dimensions of public engagement. Emotional posts, a functional use of social media by companies, positively predicted an emotional response by publics.

1. Introduction

The respiratory virus known as COVID-19 was first discovered in Wuhan, China and the initial outbreak quickly turned into a global pandemic. Nations implemented drastic measures to try and contain the virus, the result of which brought many economies to a sudden halt. With only essential businesses remaining open in most cities, companies across China found themselves in a full-blown disaster situation, and faced with the reality of how to maintain relationships with their publics (Reeves, Faeste, Chen, Carlsson-Szlezak, & Whitaker, 2020) during the COVID-19 pandemic. Practically, that mattered because positive relationships, through communication, could minimize revenue losses (Grunig, 1993) and help in economic recovery. However, little prior research, if any, has explored the effectiveness of relationship cultivation strategies used in China during a pandemic. Theoretically, the situation presented an opportunity to explore how the organization-public relationships theoretical framework can be used to increase multiple facets of public engagement.

A disaster social media use framework (Houston et al., 2015) was applied to examine companies’ social media strategies during COVID-19. Although crisis and risk communication frameworks can provide important insights for designing and delivering organizational messages during COVID-19, their objectives do not address the driving research question of how organizations maintain relationships when every organization faces the same challenge. Further, many corporations have an interrupted image to maintain and do not have a damaged image to repair. Organizations can use their messages during a disaster to not only maintain but improve relationships through messaging that prevents further disaster, restores calm, and engenders confidence in the publics. Disaster communication strategies provided a suitable lens through which public relationships could be explored during a global pandemic.

While the pandemic was a global phenomenon, the current study focused specifically on China because it has a complex risk society (Chen, Hung-Baescke, & Chen, 2020) that has dealt with national crises such as SARS and the Sichuan earthquake. Further, China afforded the opportunity to examine relationship cultivation strategies at the epicenter of the event. Finally, China is a nation whose citizens turn to social media to express their opinions as a way of gaining some freedom in their speech (Chen, 2018). Analyzing the relationship cultivation strategies used in China during the pandemic makes a meaningful contribution to both the public relations and disaster literatures.

Guided by organizational public relation theory, we analyzed how relationship cultivation strategies (Hon & Grunig, 1999) and disaster
social media use (Houston et al., 2015) affected multiple dimensions of public engagement (Brodie, Illic, Juric, & Hollebeek, 2013) on Weibo during the pandemic. Theoretically, the study aimed to extend the growing body of knowledge on relationship cultivation strategies, social media use, and public engagement through empirical evidence from China’s Fortune 500 companies during the COVID-19 pandemic. The research is timely and valuable because it is 1) among the earliest to examine how organizational relationship cultivation strategies function in pandemic times, 2) expands the literature on social media engagement, 3) addresses the issue within the Chinese context, a much-needed area of research, and 4) makes a meaningful contribution to both the public relations and disaster literature.

2. Literature review

2.1. Relationship cultivation strategies

Embracing Ferguson’s (1984) call for relationships as a public relations paradigm, scholars have sought to identify and develop standardized scales for evaluating antecedents of organization-public relationships (OPRs), relationship cultivation strategies, relational outcomes and their influence on attitudes and behaviors of the publics (Broom, Casey, & Ritchie, 1997; Grunig & Huang, 2000). The relationship management perspective shifts the objective of public relations away from influencing opinions through message manipulation to initiating, developing, and cultivating mutually beneficial relationships between organizations and publics (Bruning & Ledingham, 2000). Quality, long-term relationships can be built and maintained via strategic communication (Hon & Grunig, 1999) and they can contribute to organizational effectiveness by reducing the lost revenue that results from bad relationships with publics (Grunig, 1993).

Hon and Grunig (1999) conceptualized six communication strategies that organizations can use in cultivating quality relationships with strategic publics: access, assurances, openness, positivity, networking, and sharing of tasks. In particular, access refers to the degree of effort organizations make to communicate with the publics (Ki & Hon, 2008). Assurances occur when both parties in the relationship legitimize each other and are committed to maintaining the relationship (Grunig, Grunig, & Dozier, 2002). Openness involves sharing and disclosing thoughts and feelings concerning the relationship (Hon & Grunig, 1999). Positivity is defined as the organization or publics’ attempts to make the relationship more satisfying and enjoyable (Hon & Grunig, 1999). Networking refers to the organizations’ efforts to build coalitions and relations with the same group that engages with their publics (Hon & Grunig, 1999; Ki & Hon, 2008). Sharing of tasks is defined as the organization and its publics’ joint efforts to solve problems of mutual interest (Hon & Grunig, 1999; Ki & Hon, 2008). These six strategies serve as the main theoretical foundation for the present study.

Public relations scholars have examined relationship cultivation strategies across a range of virtual settings, including websites (Ki & Hon, 2006), blogs (Kelleher & Miller, 2006), and social media (Men & Tsai, 2012; O’Neill, 2014). However, scant research has explored the use of relationship cultivation strategies on Chinese social networking sites (SNS). It is important to explore Chinese SNS because Men and Tsai (2012) showed that there were significant cultural differences between Chinese and Western social media users; the implication being that findings from Western-based SNS may not apply to Chinese SNS. Furthermore, most research to date has looked at relationship cultivation strategies implementation during normal economic conditions, leaving questions of how the strategies function during arduous economic conditions, such as during the COVID-19 pandemic. While social distancing forced closures and extreme hardships on businesses, maintaining and enhancing public relationships during those difficult times could help companies whether crises and ensure their relationships with customers outlast the COVID-19 pandemic (Waldron & Werther, 2020). Based on the preceding discussion, the current study proposes the following question:

RQ1: What strategies did companies in China use on Weibo to cultivate quality relationships with their strategic publics during the COVID-19 pandemic in China?

2.2. Functional social media use during the COVID-19 pandemic

One advantage of social media over traditional media is that it is often the timeliest form of communication during a disaster (Houston et al., 2015). It is characterized as being low-cost, easy-to-use, mobile, accessible, and adaptable, giving it the capacity to improve emergency communication (Mills, Chen, Lee, & Raghav Rao, 2009). Those features allow information to be generated and passed on in a fraction of the time it might take a traditional mass media outlet to become aware of a situation, arrive on the scene, and then disseminate the information. The ubiquitous nature of the medium, and its increased usage during the pandemic, meant that organizations using it had a clear and direct path to engage with their publics (Chen, Min et al., 2020).

While organizations develop and deploy strategies when communicating with publics, social media affords them a range of functional uses for how those strategies are carried out. Indeed, a specific situation such as a public health emergency or a natural disaster can increase uncertainty and magnify needs, which makes the use of social media particularly important (Taylor & Perry, 2005). The interactive, conversational, communal, and collaborative nature of social media not only facilitates the organizations’ practice of two-way symmetrical communication and relationship cultivation strategies (Grunig, 2009), but also affords dialogue and engagement between organizations and publics during disasters. With social media offering a range of functional uses for how companies communicate with their publics, some of those uses may result in more, or less, communication exchanges with their publics, as measured through engagement.

The current study adapted Houston et al. (2015)’s functional framework for disaster social media use to examine corporations’ use of social media during the COVID-19 pandemic in mainland China. The functional framework is based on a uses and gratifications approach that examines how individuals, communities, organizations, news media, and governments use social media based on their needs and circumstances. According to Houston et al. (2015), social media can be used by individuals, communities, organizations, news media, and governments in 15 ways either before, during, or after a disaster. While some functions are adopted by individuals, like informing others about one’s own condition and location, or employed by the media and its audience, like delivering and consuming news coverage of the disaster, most of the functions provide strategic advice on how organizations can utilize social media to generate specific outcomes during disasters. For instance, corporations can use social media to send information, make requests for help or calls for action, provide support, express emotions, or connect and engage communities to keep their key publics either functionally or emotionally gratified.

RQ2: How did companies in China use social media functions on Weibo to communicate with publics during the COVID-19 pandemic?

2.3. Public social media engagement

Heralded as a core component in the relational approach to public relations research (Morehouse & Saifer, 2019), public engagement on social media offers organizations a way of cultivating and maintaining relationships with their publics (Chen, 2018). It creates human-centered narratives (Heath, 2014) which focus on communication as a process of meaning-making between organizations and publics (Johnston, 2014). The open and user-centric environment of social media facilitates greatly the process of engagement by allowing digital-savvy publics to perform multiple communicative and behavioral actions toward an organization, constituting either a great chance or a critical challenge for communication management and control (Macnamara & Zerfass, 2012).
As such, engaged publics can contribute greatly to organizations’ tangible and intangible assets (Chen, 2018; Kang, 2014; Men & Tsai, 2014). The importance of social media engagement for organizations in China was highlighted during the COVID-19 pandemic, as companies strove to adopt social media as a strategic communication channel to engage publics after most of their offline interaction channels had been shut down.

Even though engagement has profound practical implications and plays a key role in the relational exchange process (Brodie et al., 2013), theories on engagement are still deficient and fragmented because it has been inconsistently conceptualized and operationalized across different contexts. For example, Taylor and Kent (2014) have identified five different types of contexts where engagement is situated, each of which have defined engagement rather differently. With regards to social media engagement, existing research has predominantly examined public engagement as a unidimensional concept focusing on the behavioral dimension (Chen, 2018), most frequently measured by the number of likes, shares, and comments.

However, the profound value of engagement lies not only in a public’s liking, commenting, and sharing behaviors, but also in their proactively created content for organizations on social media (Li, Li, North, & Liu, 2017; Men & Tsai, 2014). That content, through the publics’ real-time natural responses, can reflect multiple layers of a publics’ viewpoints and affections related to the organizations. Especially during infectious disease outbreaks, when all kinds of issues, opinions, and emotions are intertwined, it is particularly important to examine social media engagement through a multifaceted lens that provides deeper insights.

The current study sought to capture multiple dimensions of the publics’ reactive and proactive responses to organizations during the COVID-19 pandemic. Publics’ social media engagement being defined as their communicative and behavioral actions toward a company and their gratification experience resulting from such action (Chen, 2017, 2018) that comprises cognitive, emotional, and behavioral dimensions (Chen, 2018). Specifically, cognitive engagement was defined as thoughts or cognitive processing (Hollebeek, Glynn, & Brodie, 2014) and was operationalized as seven types of message content found in publics comments on companies’ posts (e.g., “Information/help seeking”; “Informative reply”; “Unsolicited information” etc.; Ginossar, 2008; Men & Tsai, 2012). Emotional engagement was defined as showing dedication (Chen, 2018), enthusiasm or attachment (Kang, 2014; Scharmar & Schaefers, 2015). Publics’ emotions shown in their responses are especially relevant during crises and disasters, which contain strong emotional waves that can be generated and diffused and may resonate among individuals on social media (Mak & Song, 2019). Therefore, we operationalized emotional engagement by assessing the categories of emotions in the top public comment for each post. Finally, behavioral engagement refers to the consumer’s behavioral interactions with a corporation and it was conceptualized as the number of likes, shares and comments to each post (Chen, 2017). Holistically, we operationalized public engagement as a three-dimensional construct consisting of cognitive, emotional, and behavioral dimensions, and proposed the following research question:

RQ3. How did publics engage with companies’ COVID-19 pandemic-related posts in terms of cognitive, emotional and behavioral dimensions in China?

Furthermore, albeit limitedly, previous scholarship has indicated a link between relationship strategies and public social media engagement. For instance, Men and Tsai’s study (2015) of public engagement on corporate Facebook pages revealed that organizational communication styles characterized by openness, friendliness, empathy, integrity, warmth, and sincerity, which are consistent with relationship cultivation strategies, promote and enhance public engagement with companies. To determine if a link between relationship cultivation strategies, and public engagement would be present during a pandemic, we proposed the following research question:

RQ4. How, if at all, did companies’ relationship cultivation strategies influence public engagement during the COVID-19 pandemic in China?

Previous research has explored the correlations between disaster social media use and engagement rather limitedly. However, Houston (2012) suggested disaster-specific communication strategies during disasters can help accomplish certain objectives. For instance, developing connections and relationships can help develop trust and credibility during disasters, while efforts to engage publics in discussions of disasters increases their collective efficacy and resilience. Since social media offers more opportunities for two-way communication and dialogue, the following research question has been proposed:

RQ5: How, if at all, did the companies’ disaster social media use influence public engagement during the COVID-19 pandemic in China?

3. Method

A content analysis was used to examine COVID-19 related content disseminated by China’s Fortune 500 companies on their Weibo pages. Sina Weibo was selected as the data collection platform because: (a) Weibo is one of the most popular social media sites in China; (b) while WeChat allows account owners to filter out comments, which leads to sampling biases, Weibo displays all likes, shares and comments for each post.

3.1. Data collection

A random sample of 30 companies from the “2019 Fortune China 500” list of the largest corporations by revenue (Fortune China, 2019) was selected for data extraction. Companies from the initial sample that did not maintain an active Weibo account (n = 12) were removed and replaced with other randomly sampled companies. Following Gao (2016, p. 261), we defined accounts that “have not been updated for more than 1 month or had less than 20 posts in total” as inactive. The process was repeated until 30 randomly sampled Chinese Fortune 500 companies with active Weibo accounts had been selected. (Table 1)

3.1.1. Weibo crawling

A Weibo crawling tool (Dataabc, 2020) was utilized to retrieve open-access, publicly available content from Weibo. Crawling tools automatically collect Weibo posts according to user-specified parameters which, in this case, were the data collection period for each account set from January 20th, 2020, when the World Health Organization (WHO) confirmed human-to-human transmission of SARS-CoV-2 (World Health Organization Western Pacific, 2019), to April 10th, 2020, three days after China lifted their lockdown on Wuhan (Gan, 2020). In addition to the posts by the companies, the most relevant comment under each post (if any), as rated by Weibo1, was also collected. In total, 9671 initial posts were collected based on the specified parameters.

3.1.2. Analysis of posts

Applying a list of COVID-19 related keywords, posts were screened for relevance to the pandemic, generating 5041 posts. Of those, a random sample of 15% was extracted for content analysis. The final sample consisted of 756 qualified posts from 30 companies and 553 corresponding comments.

3.2. Coding procedures

A codebook was developed to ensure consistency during the coding process. The codebook contained detailed instructions regarding the coding process and provided examples, in Chinese, from selected posts.
whom were native Chinese speakers and fluent in English. The coders underwent four training sessions and intercoder reliability was checked after the fourth session with a subset of 113 posts and 81 top comments, i.e. 15 % of the sample. Cohen’s Kappa reliabilities ranged from .74 to 1.0 across all items except one,\(^2\) indicating acceptable agreement between the coders (Perreault & Leigh, 1989). Having confirmed reliabilities, the coders were then assigned half of the remaining posts each to independently complete the coding.

3.3. Measures

Measurement of relationship cultivation strategies was adapted from Ki and Hon’s (2008) scale consisting of six dimensions: access, positivity, openness, sharing of tasks, networking and assurances. While the scale was originally designed for surveys, the measurement items were modified for use in a content analysis. For example, Q2 in Ki and Hon (2008, p.16) scale was ‘— provides members with adequate contact information’. This question was operationalized as “Providing contact information of the organization within the post”. Responses were coded as a 1 or 0, with 1 being “Yes” and 0 being “No”. Individual posts were counted in multiple categories if they contained more than one strategy.

Companies’ disaster use of social media was assessed using an adaptation of Houston et al.’s (2015) functional framework for social media use in disaster planning, response, and research. The original framework consisted of 15 functions covering pre-, during, and post-event functions and encompassed individuals, communities, organizations, governments, and news media. In total, eight of Houston et al.’s (2015) functions of disaster social media and one emergent function were assessed in the present study.

Following Ji et al. (2017), public engagement was measured using naturally occurring matrices with three dimensions of engagement: cognitive, emotional, and behavioral. Cognitive engagement was defined as thoughts or cognitive processing (Hollebeek et al., 2014) and was operationalized as seven types of message content of publics comments on companies’ posts (e.g., “Requesting help or information”) (Ginossar, 2008; Men & Tsai, 2012). Emotional engagement was defined as showing dedication (Chen, 2018), enthusiasm/attachment (Kang, 2014; Schamari & Scharfens, 2015) and each post was assessed for sentiment (positive, negative, neutral) and emotions, guided by 16 emotions, with five negative emotions (e.g. anger; fear/anxiety; sadness etc.) adapted from Jin, Liu, Anagondahalli, and Austin (2014), five positive emotions (e.g. happiness/Satisfaction; hope; gratefulness etc.) adapted from Fredrickson (2003), and three other emotions including surprise/confusion, Sarcasm/Schadenfreude, and Other (Coombs & Holladay, 2005; Meadows & Meadows, 2020). Finally, behavioral engagement was assessed using a simple number count of likes, shares and comments (Chen, 2017).

Guided by previous literature (Men & Tsai, 2012; Men, Tsai, Chen, & Ji, 2018), each company’s industry, type of business, Weibo followers, and original content, i.e. whether the post was original or forwarded, were added as control variables. Further, message vividness has been shown to influence engagement and was also added as a control variable (Z. F. Chen, Ji, & Men, 2017).

4. Results

4.1. Descriptive analysis

To answer RQ1, which explored the employment of relationship cultivation strategies during the pandemic, a descriptive frequency analysis was conducted on 756 posts and 553 comments (see Table 2). Openness was the most frequently used strategy (n = 588), with 77.8 %

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2 A single measure had a reliability of .66. Riffe, Lacy, and Fico, (2014) have noted that Cohen’s Kappa is susceptible to low reliabilities due to frequency imbalances being overcorreted. They recommend assessing the percentage of agreement as a secondary measure of reliability. In this case, there was a 99% agreement rate between the coders for the measure. As such, the measure was determined to have an overall acceptable reliability.
Table 2: Descriptive information of companies’ Weibo posts during COVID-19.

| Variable/measure                                    | Frequency | Percentage | Agreement | Intercoder reliability |
|-----------------------------------------------------|-----------|------------|-----------|------------------------|
| Relationship cultivation strategies (N = 756)       |           |            |           |                        |
| Access                                              | 263       | 34.8 %     |           |                        |
| Contact information                                 | 155       | 20.5 %     | 1.00      | 100.00 %               |
| Response to comments                                | 110       | 14.6 %     | 0.91      | 97.35 %                |
| Sequentially organized replies                      | 19        | 2.5 %      | 0.66      | 99.12 %                |
| Positivity                                          | 374       | 49.5 %     |           |                        |
| Useful information                                  | 48        | 6.3 %      | 0.82      | 98.23 %                |
| Communication intervention                          | 35        | 4.6 %      | 1.00      | 100.00 %               |
| Recreational elements                               | 331       | 43.8 %     | 0.98      | 99.12 %                |
| Conversation starter                                | 21        | 2.8 %      | 0.85      | 99.12 %                |
| Openness                                            | 588       | 77.9 %     |           |                        |
| Organizational actions                              | 498       | 65.9 %     | 0.90      | 95.58 %                |
| Information disclosure                              | 362       | 47.9 %     | 0.77      | 88.50 %                |
| Issue briefings                                     | 144       | 19.0 %     | 0.74      | 91.15 %                |
| Sharing of tasks                                    | 13        | 1.7 %      |           |                        |
| Asking for advice                                   | 10        | 1.3 %      | 1.00      | 100.00 %               |
| Direct/indirect request                             | 3         | 0.4 %      | *         | 100.00 %               |
| Networking                                          | 284       | 37.6 %     |           |                        |
| Partnership                                         | 71        | 9.4 %      | 0.88      | 98.23 %                |
| Reposting others                                    | 79        | 10.4 %     | 0.92      | 98.23 %                |
| Mentioning others                                   | 148       | 19.6 %     | 0.85      | 94.69 %                |
| Assurances                                          | 398       | 52.6 %     |           |                        |
| Emotional attachment                                | 348       | 46.0 %     | 0.75      | 87.61 %                |
| Showing care                                        | 58        | 7.7 %      | 0.85      | 99.12 %                |
| Disaster social media use                          |           |            | 0.88      | 92.92 %                |
| Signal and detect disease threat                    | 6         | 0.8 %      |           |                        |
| Send information on help or assistance              | 447       | 59.1 %     |           |                        |
| Discuss medical/ scientific information/plans       | 3         | 0.4 %      |           |                        |
| Raise public awareness                              | 13        | 1.7 %      |           |                        |
| Express emotions, concerns, wishes and memorial     | 144       | 19.0 %     |           |                        |
| Tell stories and personal experiences               | 53        | 7.0 %      |           |                        |
| Discuss socio-political and scientific causes and implications | 20 | 2.6 % | | |
| Respond to criticism and questionings               | 0         | 0.0 %      |           |                        |
| Public education about knowledge, tips and measures  | 41        | 5.4 %      |           |                        |
| Other                                               | 29        | 3.7 %      | 0.94      | 95.58 %                |
| Purpose of public responses (N = 553)               |           |            |           |                        |
| Help/information seeking                            | 51        | 9.2 %      |           |                        |
| Informative reply                                   | 20        | 3.6 %      |           |                        |
| Unsolicited information                             | 32        | 5.8 %      |           |                        |
| Emotional expression                                | 238       | 43.0 %     |           |                        |
| Advocacy or request                                 | 17        | 3.1 %      |           |                        |
| Not related to the COVID-19 outbreak               | 112       | 20.3 %     |           |                        |
| Other                                               | 62        | 11.2 %     | 0.84      | 92.04 %                |
| Emotions in the public responses (N = 553)          |           |            |           |                        |
| Anger/hostility                                     | 13        | 2.4 %      |           |                        |
| Fear/Anxiety                                        | 8         | 1.4 %      |           |                        |
| Sadness                                             | 1         | 0.2 %      |           |                        |
| Guilt/shame                                         | 1         | 0.2 %      |           |                        |
| Disappointment/disatisfaction                        | 10        | 1.8 %      |           |                        |
| Happiness/Satisfaction                              | 93        | 16.8 %     |           |                        |
| Hope                                                | 66        | 11.9 %     |           |                        |
| Pride                                               | 1         | 0.2 %      |           |                        |
| Love                                                | 7         | 1.3 %      |           |                        |
| Gratefulness                                        | 9         | 1.6 %      |           |                        |
| Surprise/Confusion                                  | 0         | 0.0 %      |           |                        |
| Sarcasm/Schadenfreude                               | 2         | 0.4 %      |           |                        |
| Other emotions                                      | 0         | 0.0 %      |           |                        |
| Cannot be identified                                | 342       | 61.8 %     |           |                        |

* Cohen’s kappa is undefined for this variable due to invariant values.

Table 2 (continued)

| Variable/measure                                | Frequency | Percentage | Agreement | Intercoder reliability |
|-------------------------------------------------|-----------|------------|-----------|------------------------|

of companies’ posts utilizing it. That was followed by assurances (n = 398, 52.6 %), positivity (n = 374, 49.5 %), networking (n = 284, 37.6 %) and access (n = 263, 34.8 %). Sharing of tasks was very rarely adopted (n = 13, 1.7 %). To show their openness to publics, companies most often reported their organizations’ actions (n = 498, 65.9 %) and frequently disclosed information (n = 362, 47.9 %), while sometimes issuing briefings (n = 144, 19 %). When assuring their publics, emotional attachment was often used (n = 349, 46.0 %). Regarding positivity, companies posted a number of recreational pictures, gifs, videos, animations or emojis (n = 331, 43.8 %). However, companies rarely replied to their publics’ comments (n = 19, 2.5 %), asked for their publics’ advice (n = 10, 1.3 %), or made direct or indirect requests (n = 3, 0.4 %).

RQ2 explored how companies used disaster social media functions on Weibo during the COVID-19 pandemic. The descriptive frequency analysis showed that nearly 60 % of the posts focused on sending information related to help or assistance (n = 447, 59.1 %). For example, where people could make donations or volunteer to help. That was followed by expressing emotions (n = 144, 19.0 %), including concerns and well-wishes. The companies sometimes told stories and shared personal experiences about the outbreak (n = 53, 7.0 %) and educated their publics (n = 41, 5.4 %). However, they rarely discussed the socio-political or scientific causes and implications of, and responsibility for, the outbreak (n = 20, 2.6 %) or reminded the public of the consequences of COVID-19 to raise awareness (n = 13, 1.7 %) and they almost never signaled and detected the threat (n = 6, 0.8 %) or discussed medical or scientific information for the pandemic (n = 3, 0.4 %). None of the sampled posts implemented traditional crisis communication activities (i.e. respond to criticism and questioning).

RQ3 asked how publics engaged with companies cognitively, emotionally, and behaviorally. The descriptive frequency analysis showed that cognitively, emotional expression was the most common form of engagement (see Table 2 for full results). When looking at emotional engagement revealed in responses, neutral or no emotions (n = 342, 61.8 %) were the most common attitude expression towards companies, followed by positive emotions (n = 178, 32.2 %). Only 6.0 % of comments contained negative emotions (n = 33, 6.0 %). Measuring emotions in the public responses (see Table 2), the most common emotion was happiness/satisfaction (n = 93, 16.8 %), followed by hope (n = 66, 11.9 %). Anger (n = 13, 2.4 %) and disappointment/dissatisfaction (n = 10, 1.8 %) were the most common negative emotions. Surprise/confusion was not found in the top public comments (n = 0), while sadness, guilt/shame and pride were only found one time each (n = 1, 0.2 %).

Over one-third of the top-rated public comments contained an emotional expression (n = 238, 43.0 %). Aside from comments not related to COVID-19 (n = 112, 20.3 %), publics also sought help or information (n = 51, 9.2 %) and provided unsolicited information (n = 32, 5.8 %) in their comments. Conflicts were rare (n = 21, 3.8 %), as were informative replies (n = 20, 3.6 %) and advocacy (n = 17, 3.1 %). Behaviorally, the average company post received about 41 likes...
4.2. Inferential analysis

RQ4 and RQ5 sought to address whether and how companies’ relationship cultivation strategies and disaster social media use would influence public engagement during the COVID-19 pandemic in China. In terms of behavioral engagement, we first examined the three dependent variables (i.e., likes, shares, and comments) and according to the frequency analysis, a large proportion of the values (16% of likes, 26.7% of shares and 25.3% of comments) were 0 with no negative results, i.e., they were limited dependent variables with a lower limit of zero. This suggested that any estimates undertaken using a linear regression would be biased (Tobin, 1958) and the coefficients from the analysis would not necessarily approach the “true” population parameters (Long, 1997). Therefore, a censored regression model (also known as the Tobit model) was utilized. Tobit regression models were designed to estimate linear relationships between variables when there is a limited dependent variable (Tobin, 1958). Results of the Tobit regression analysis were obtained using Stata 13.1 software.

As shown in Table 3, the overall results revealed that among the six relationship cultivation strategies, access was positively associated with all of the behavioral engagement indicators, including the total number of likes (Coef. = 35.83, p < .001), shares (Coef. = 51.65, p < .001), and comments (Coef. = 20.12, p < .001). Moreover, the number of shares was also significantly predicted by openness (Coef. = 15.30, p < .05) and sharing of tasks (Coef. = 58.22, p < .05). In contrast, assurances had small but significant negative effects on the total number of comments (Coef. = −5.73, p < .05).

To test the effects of relationship cultivation strategies and disaster social media use on emotional engagement, a hierarchical linear regression was conducted. The 13 public emotions were transformed into continuous variables with negative emotions scored as 1, neutral or no emotions as 2, and positive emotions as 3. The dependent variable and residuals in the linear regression models were rechecked and met the normality assumption of multiple regression. The overall results suggest that only one relationship cultivation strategy, access, had a significant impact on the emotional valence (B = .11, β = .11, p < .05). In comparison, organizations’ disaster social media use generally had a significant influence. Specifically, sending information about help or assistance (B = .27, β = .23, p < .05), raising public awareness (B = .47, β = .11, p < .05), expressing emotions, concerns, wishes and memorials (B = .37, β = .25, p < .01) and telling stories and personal experiences (B = .36, β = .18, p < .05) significantly predicted publics’ positive emotions. (Table 4)

For cognitive engagement, we conducted a multinomial logistic regression analysis to examine the effect of relationship cultivation strategies and disaster social media use on public responses. Table 5 gives a summary of the results, showing that relationship cultivation strategies and disaster social media use both had a significant influence on the purposes of the public’s responses. Specifically, the access strategy significantly predicted the publics’ responses for help/information seeking (B = 1.46, OR = 4.30, p < .01), emotional expression (B = 1.00, OR = 2.73, p < .05), advocacy (B = 1.72, OR = 5.56, p < .01) and conflict (B = 1.22, OR = 3.98, p < .05). Positivity had a significant positive impact on the publics’ responses for an informative reply (B = 2.10, OR = 8.20, p < .001) and conflict (B = 1.19, OR = 3.28, p < .001). For disaster social media use, expressing emotions, concerns, wishes and memorials significantly predicted public responses for emotional expressions (B = 2.87, OR = 17.65, p < .05). Also, discussing socio-political and scientific causes and implications had a significantly positive influence on conflict in public responses (B = 7.29, OR = 1459.78, p < .05), while public education about knowledge, tips and measures had a significant negative influence on informative reply (B = −5.65, OR = .00, p < .05).

### Table 3 Random effects Tobit regression results.

| Predictors | Likes | Shares | Comments |
|------------|-------|--------|----------|
| Relationship cultivation strategies | | | |
| Access | 35.83 | 51.65 | 20.12 |
| Positivity | −10.15 | −5.64 | −.89 |
| Openness | 4.74 | 3.50 | 4.55 |
| Sharing of tasks | 22.86 | 58.22 | 11.76 |
| Networking | −12.12 | 9.96 | .45 |
| Assurances | −12.09 | −11.86 | −7.53 |
| Disaster social media use | | | |
| Signal and detect disease threat | −2.02 | −.93 | −181.75 |
| Send information on help or assistance | 2.91 | 11.65 | −13.49 |
| Discuss medical/scientific information, plans | 4.24 | 58.65 | 10.54 |
| Raise public awareness | 11.20 | 30.93 | −17.57 |
| Express emotions, concerns, wishes and memorial | 3.34 | 19.87 | −5.97 |
| Tell stories and personal experiences | 6.27 | 22.14 | −6.14 |
| Discuss socio-political and scientific causes and implications | 29.07 | 27.00 | −3.59 |
| Respond to criticism and questionings | | | |
| Public education about knowledge, tips and measures | −4.64 | 24.30 | −8.60 |
| Model fit | χ² = 1120.11 | χ² = 727.74 | χ² = 725.39 |
| | .001 | .001 | .001 |

* a. Coef. p < .01.
* b. Coef. p < .05.
* c. Coef. p < .001.

5. Discussion

This study explored how Chinese companies’ relationship cultivation strategies and disaster social media use influenced publics’ social media engagement at the cognitive, emotional, and behavioral levels during the COVID-19 pandemic. The findings extend our knowledge of engagement as a multi-dimensional construct and offer valuable insights into how publics react and respond to companies’ relationship cultivation attempts in times of extreme, widespread social duress.
address their usual concerns, their efforts are met with more actively. 

strategy exerted a significant effect across all three levels of public 

access, openness, positivity, and sharing of tasks, had significant and 

positive correlation between the use of access and increased engagement 

aligned with previous research conducted during a disaster situation 

(Cheng, Chen, Jin, & Hung-baesecke, 2019; Reynolds, 2007). By 

providing publics access to companies, it allows users to participate in 

organizational decision-making processes, which leads to more positive relational outcomes (Ki & Hon, 2009).

Interestingly, while access was found to be a key driver of engage-

ment, it was rarely used by companies. Chinese companies seldom 

replied to publics’ comments or provided their contact information; 

meaning they may have underutilized access as a relationship cultiva-

tion strategy. This accessibility is an important strategy that facilitates 

two-way communication, an essential catalyst for public engagement on 

social media. Two-way communication that values public participation 

allows publics to voice their concerns in risky policy-making processes 

and can empower them (Ding & Zhang, 2010). Empowerment is seen as 

a motivational state of engagement (Kang, 2014), which aligned with 

the current findings. Thus, companies should enhance, through access, 

regular dialogue because it stimulates public engagement on social 

media, even during a pandemic.

The study also revealed that openness and the sharing of tasks 

positively predicted the number of times people shared posts. Openness 

may have resonated with today’s digital-savvy “netizens” who are eager 

for an environment of engagement with brands and organizations, 

participation in value co-creation, and transparent information (Bolton 

et al., 2013). In health pandemic situations characterized by urgency 

and uncertainty (Lee, 2014), using social media to promote unique 

health emergency communication and education strategies, as well as to 

invite publics to solve problems of mutual interests, can satisfy their 

information needs (Strekalova, 2017), which could later lead to more 

engagement in the form of shares. Sharing of tasks led to sharing be-

haviors that may have been triggered by posts containing rational in-

formation, sensory features, or visual elements within the messages 

(Kim & Yang, 2017).

Worth noting, the assurance strategy exerted a small but significant 

negative effect on behavioral engagement. People were less likely to 

comment on a company’s post when the company showed empathy, 

care, respect, or support for others. This can be partially explained 

through prior research which has shown that the predictor of com-

menting behaviors on Facebook does not come from affective messages, 

but from messages soliciting responses and providing rational infor-

mation (Kim & Yang, 2017). In the current study, more than half of the 

posts made by the companies used the assurance strategy, making the 

expression of care and empathy a common practice during the 

pandemic. While the underlying causes cannot be determined from this 

study, and should be explored further in future research, use of the

| Predictors | B | SE(b) | Wald $\chi^2$ | p | ORs |
|------------|---|-------|-------------|---|-----|
| Access | .11 | .11 | 2.08 | .15 | 1.12 |
| Positivity | -.07 | .08 | 1.58 | .22 | 0.94 |
| Openness | -.00 | .00 | .04 | .80 | 0.99 |
| Sharing of tasks | .35 | .08 | 1.75 | .19 | 1.43 |
| Networking | .01 | .01 | .23 | .63 | 1.01 |
| Assurances | .03 | .03 | .59 | .45 | 1.03 |
| Disaster social media use | | | | | |
| Signal and detect disease threat | .12 | .08 | 1.54 | .22 | 1.12 |
| Send information on help or assistance | .27 | .23 | 1.98 | .16 | 1.30 |
| Discuss medical/scientific information/plans | .13 | .01 | .33 | .57 | 1.14 |
| Raise public awareness | .47 | .11 | 2.19 | .14 | 1.61 |
| Express emotions, concerns, wishes and memorial | .37 | .25 | 2.62 | .11 | 1.44 |
| Tell stories and personal experiences | .36 | .18 | 2.46 | .12 | 1.44 |
| Discuss socio-political and scientific causes and implications | .01 | .00 | .05 | .81 | 1.01 |
| Respond to criticism and questionings | | | | | |
| Public education about knowledge, tips and measures | .30 | .11 | 1.76 | .19 | 1.38 |
| Model fit | .17 | .01 | | | |

Note: the table shows the last block in the hierarchical regression.

### 5.1. Effects of relationship cultivation strategies on public engagement

The results showed that relationship cultivation strategies still mat-

ter during a pandemic. Four of the relationship cultivation strategies, 

access, openness, positivity, and sharing of tasks, had significant and 

positive effects on at least one level of public engagement. The access 

strategy exerted a significant effect across all three levels of public 

engagement: cognitive, emotional, and behavioral. When companies 

include their contact information, reply to the public comments, or 

address their usual concerns, their efforts are met with more actively 

engaged publics. Also, access had a significant effect on emotional re-

sponses from the public, with an increase of accessible posts by com-

panies leading to public responses with more positive emotions. The

Table 5

Multinomial logistic regression results.

| Purpose of responses | Predictors | B | SE(b) | Wald $\chi^2$ | p | ORs |
|----------------------|------------|---|-------|-------------|---|-----|
| Help /information seeking | Relationship cultivation strategies | | | | | |
| Access | 1.46** | .52 | 7.88 | .005 | 4.30 |
| Informative reply | Positivity | 2.10** | .51 | 17.10 | .000 | 8.20 |
| Public education about knowledge, tips and measures | | | | | |
| Access | 1.00* | .42 | 5.85 | .016 | 2.73 |
| Express emotions, concerns, wishes and memorial | | | | | |
| Access | 2.87* | 1.23 | 5.46 | .019 | 17.65 |
| Advocacy or request | Relationship cultivation strategies | | | | | |
| Access | 1.72** | .66 | 6.77 | .009 | 5.56 |
| Conflict /complaint /criticism | Relationship cultivation strategies | | | | | |
| Access | 1.22* | .60 | 4.14 | .042 | 3.38 |
| Positivity | 1.19* | .54 | 4.87 | .027 | 3.28 |
| Discuss socio-political and scientific causes and implications | | | | | |
| Access | 7.29* | 3.35 | 4.73 | .010 | 1459.78 |

Note: The table displays only significant variables.

* p < .05.
** p < .01.
*** p < .001.
assurance strategy resulted in a significant decrease in the number of comments people made.

While most of previous research discussed the relational approach of public relations in western context (e.g. Hon & Grunig, 1999; Ki & Hon, 2006, 2008; etc.), our findings suggest that the relationship cultivation strategies work smoothly in China with different political systems, media landscapes, and cultural traits. While most people do not have access to the world’s major social media platforms, and the entire society shared one narrative of the pandemic (He, Shi, & Liu, 2020), Chinese publics still appeal to companies for quality relationships on Weibo. Also, Chinese companies have made considerable efforts to take advantage of the COVID-19 spotlight for cultivating relationships with their publics, and most of their strategies generated satisfying results.

5.2. Effects of companies’ disaster social media uses on public engagement

Many people found themselves anxiously searching the Internet for comfort and information while sheltering at home during the COVID-19 pandemic. That phenomenon is what the World Health Organization called an “infodemic” (Wilkins, 2020). To effectively engage people suffering from the infodemic, communication professionals must understand how companies can engineer their social media content. The findings indicated that a company’s disaster social media use may be a better predictor of a publics’ emotional engagement than the relationship cultivation strategies. Specifically, when Chinese companies’ made appeals for help or assistance, raised public awareness, expressed emotions, told stories, and shared personal experiences, they were more likely to encourage positive affective reactions.

Previous research has argued that engagement behaviors on social media are driven by publics’ motivations for social media uses (Dolan, Conduit, Fahy, & Goodman, 2016). Being quarantined at home, people actively used social media to seek support, gain a sense of belonging, and connect with others (Lev-On, 2012; Wiederhold, 2020). In response to a large-scale health crisis, emotional, empathetic, and philanthropic content can help publics make sense of the pandemic, thereby fostering trust and enhancing long-term organization-public relationships (Lee, Hosanagar, & Nair, 2013; Liu & Kim, 2011). In this sense, the most important use of social media is not to transmit information from the top down, but to provide organizations and individuals with the opportunity to participate in collective actions and fulfill their needs (Lev-On, 2012). Thus, the findings in this study align with the previous literature because companies that prioritized and satisfied stakeholders’ needs were more likely to receive favorable affective responses from their publics (Cheng et al., 2019; Jin et al., 2014).

Moreover, this study found that the most common emotional response, whether targeted at the companies or not, were positive (i.e., happiness, satisfaction, and hope). Roughly 75% of the identifiable emotions from the public responses were categorized as showing happiness/satisfaction and hope (see Table 2). That was consistent with prior research showing that people experienced positive emotions more frequently than negative emotions during a pandemic (Kim & Ni- derdeppe, 2013). Indeed, the emotions publics experienced can vary according to the perceived level of organizations’ involvement (Jin, Pang, & Cameron, 2007). And to some extent, companies are also victims of the pandemic just like the publics, which tends to evoke sympathy from publics (Coombs & Holladay, 2005).

5.3. Implications

These research findings are expected to advance our understanding of relationship management and social media engagement in the field of public relations in several ways. First, the findings show that even though the relational approach to public relations was posited for long-term organization-public relationships under normal economic conditions, relationship cultivation still occurs during a widespread disaster, like the COVID-19 pandemic. Second, the study refines measures of engagement by assessing both the publics’ communication behaviors (i.e., liking, sharing or commenting companies’ SNS posts) and their proactively created content of the accounts (i.e., purposes and emotions of their comments). The multi-dimensional approach captured the two-way communication between organizations and publics as well as the publics’ cognitive and emotional state of involvement with the organizations, providing a deeper measure of engagement compared with a uni-dimensional approach. Third, the results suggest that organizations’ efforts to cultivate relationships have an important impact on a publics’ engagement; not only in their reactive behavior, but also in their cognitive perceptions and their emotional reactions reflected by their proactive responses. Fourth, the study provides evidence of how publics perceive and emotionally respond to organizations various uses of disaster social media. Such findings will inform disasters communication scholars as they attempt to understand the effects of disaster social media use. Finally, the study contributes to the cross-cultural adaptability of relationship management theory by extending it to a non-western context.

Practically, the results provide strategic guidance on how companies might sustain quality relationships with their publics during widespread economic disruptions. For example, the findings indicate that companies should be more accessible to their publics because accessibility led to increases across all three engagement constructs. While organizations should continue to be open, they can also be accessible by responding to their public’s posts and ensuring that they provide avenues for two-way communication, when and where appropriate. If organizations enter a pandemic equipped with these strategies for maintaining and strengthening their relationships, it might help them return to economic viability more quickly post-pandemic.

5.4. Limitations

Some limitations in the current study should be noted and addressed in future research, beginning with the sample size. The current sample consisted of just 30 companies, 756 company posts, and only the top user comments for each post, thus, limiting the generalizability of the findings. Moreover, the study applied a content analysis approach which does not allow researchers to imply causality between variables (Berg & Lune, 2012). Future research using surveys, in-depth interviews, experiments, or real-time online data analysis to examine the effect of organizational strategies on engagement from the companies’ or publics’ perspective could address these limitations. Additionally, the study only examined one type of social media, Weibo, and one type of cultural context, China. The different cultural contextual factors might make for distinctive forms of social media communication between organizations and publics (Ao & Huang, 2020). Therefore, a cross-cultural comparison of organizations’ social media responses to the COVID-19 pandemic will help explore the framework might be utilized to create tailor-made strategies within different cultural contexts.

5.5. Future research

Promising lines of future research might begin with further examination of the outcomes (e.g. improved organization-public relationships; Men & Tsai, 2013) of engagement during the COVID-19 pandemic. Results of such research could better inform companies about disaster communication and relationship building strategies and tactics on social media. Researchers could also validate the findings of the present study by examining other types of social media, like Facebook, Twitter, or Instagram, in other cultural contexts. A cross-cultural comparison between eastern and western contexts could offer important insights.

5.6. Conclusion

The COVID-19 pandemic disrupted the global economy and raised questions of how organizations maintain relationships with their
publics. To explore the topic, the current study employed a quantitative content analysis of Weibo posts made by leading Chinese companies and examined which relationship cultivation strategies and functional uses of social media were utilized in China. In one of the first studies of its kind, a multi-dimensional operationalization of engagement was used to measure the cognitive, emotional, and behavioral aspects of the publics’ responses. The results revealed that while company posts using the access strategy led to increases in all three levels of engagement with publics, it was one of the least used strategies. The results also showed that companies’ emotional posts, a functional use of social media, were reciprocated by emotional posts from their publics, providing further support for existential relationships between organizations and publics (Grunig & Huang, 2000). Holistically, the findings indicate that relationship cultivation in China occurs even during a widespread disaster, as some strategies and content types were clearly more effective than others.

**Declaration of Competing Interest**

There is no conflict of interest involved in this study.

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