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Managing university crises through psychological distance and information strategies

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Higher education institutions experiencing organizational misconduct frequently need to communicate with the public to reduce reputation damage and diminishing supportive intentions. Whether such information should be abstract or concrete is still being debated. This study investigates the effectiveness of organizational information strategy through an online factorial experiment, grounded in the principles of situational crisis communication theory and construal-level theory. The findings indicate that concretely developed information strategies are more effective when the organization is viewed as psychologically close to (rather than distant from) the public. Similarly, abstractly articulated information strategies work better when the organization is viewed as psychologically near. Finally, research reveals that information strategy exerts a greater influence on organizational reputation and supportive intention than temporal and spatial distance. By including information construal levels and psychological distance in crisis response strategies, this study provides helpful guidance for universities to manage crises efficiently.

Keywords SCCT, CLT, Information strategy, Temporal distance, Spatial distance

Colleges and universities have faced a stunning number of crises in recent years[1]. Similarly, Chinese colleges and universities have witnessed a significant increase in crisis events, spanning various aspects of educational management[2]. A crisis, can cause significant harm to organizations and their stakeholders, particularly jeopardizing an organization's reputation[3]. It is considered that the most desirable outcome is the manifestation of further supportive behavioral intentions toward an organization during a crisis situation[3]. In cases where managerial misconduct leads to a crisis at a university, a primary concern is the potential impact on the institution's reputation and the willingness of the public to offer support[4]. Protecting an organization's reputation and gaining public support during a crisis are paramount tasks in crisis communication[5].

Information strategies are critical in effectively restoring reputations damaged by a crisis, despite the existence of three types of crisis communication strategies[6]. Consequently, it is critical for the organization to provide relevant information to stakeholders in the first instance, such as the status of the matter and the actions taken, as well as reminding victims to protect themselves and prevent re-victimization, i.e., instructing and adjusting information, as discussed in situational crisis communication theory (SCCT)[7]. The information delivered a feeling of hand over the issue in question and, ultimately, good attitudes toward the institution[8]. Recent research has integrated threat and efficacy messages, as well as message appeal variables, into information strategies for assessing organizational crisis responses[9,10]. Park (2017)[11] examined the impact of information, reminder, and no-response strategies on company reputation and behavioral intentions. Zhao et al. (2020)[12] researched the solitary effect of information strategy in online crisis scenarios, whereas Page (2022)[6] examined its changing influence on a company's reputation. Although these studies took into account additional variables when assessing information strategy results, none addressed the effectiveness of distinct types of information strategies (concrete versus abstract).Crisis communication scholars and practitioners need to further delve into which type of information strategy is most appropriate during a crisis[9]. This study investigates how information, specifically instructing and adjusting information, affects the public's perception of organizational reputation and subsequent behavioral intentions.

Originally, Construal level theory (CLT) focuses on people's psychological perceptions[13]. In this study, construal level theory provides a suitable framework for testing the impact of information strategies, construal level, and psychological distance on organizational reputation and supporting intents during a crisis. Construal

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level makes people view crisis information as concrete and detailed or abstract and holistic. The psychological distance can cause the public to perceive a crisis as less relevant[14]. When the public perceives an information strategy as concrete and detailed, it reflects a low-level construal, indicating a close psychological distance. In contrast, abstract information is linked to high-level construal, indicating a distant psychological distance[15]. As Schreurs and Hamstra (2020)[16] highlight that grasping the impact of the construal of information strategies—whether concrete or abstract—becomes particularly crucial, as it can significantly shape public perceptions of organizational reputation and behavioral intentions. Which of the two types of information—concrete or abstract—is more likely to yield positive outcomes for a university during a crisis? Currently, this represents a gap in crisis communication, highlighting a field that warrants further exploration and discussion.

In crisis communication, the timing of post-crisis responses is also critical[7,17]. Lukaszewski (2011)[18] introduced the concept of the "golden hours," emphasizing the importance of timely information from crisis-affected organizations in shaping public perceptions and understanding of the response[19]. According to Schreurs and Hamstra (2020)[15], spatial distance influences the effectiveness of crisis response strategies in the context of organizational misconduct. Brinks and Ibert (2020)[20] presented empirical evidence demonstrating the importance of spatial factors in crisis circumstances. In psychology study, the concept of psychological distance, which includes both temporal and spatial dimensions, has provided a new understanding of time and spatiality. Psychological distance towards an event plays an important role in determining how public construe it, shaping public opinions, attitudes and behaviors[7,21,22]. Specifically, temporal and spatial distances have been shown to explain changes in individuals' preferred actions as time and space evolve[16]. In my present research, the public asses an organizational crisis based on the interplay between their subjective perceptions of temporal and spatial proximity and the level of abstraction or concreteness in the crisis response strategy. This introduces a micro-level perspective and framework for assessing the effectiveness of crisis response strategies. Yet, a clear gap remains in the literature regarding the impact of integrating information construal with temporal and spatial distance in organizational crises.

Given the scant exploration of information construal, especially when evaluating the effectiveness of information strategies in crisis communication scenarios, this study endeavors to delve into whether and to what extent the interaction between information strategy construal and psychological distance (temporal and spatial distance) can help organizations manage threats to reputation and enhance supportive intentions. This study expects to deepen the understanding of the role of construal level and psychological distance function within the realm of crisis communication, as well as to extend the application of construal level theory to the field of crisis communication in higher education. Furthermore, it also provides different perspectives and ideas for universities to develop better crisis response strategies. By emphasizing the significance of information construal levels, the study's findings will illuminate the public's perception processes, thereby, equipping relevant practitioners and universities with more effective strategies.

Literature review

Situational crisis communication theory and information strategy

Repairing an organization's damaged reputation following a crisis in the field of crisis communication is an essential task and primary goal[23,24]. SCCT divides crises into three categories according to the level of attributed responsibility: victim, accidental, and preventable. The stronger the attribution of blame, the greater the severity of the reputational harm to the organization[7,25]. The primary objectives of crisis response strategies encompass safeguarding the organization's reputation, reshaping public perceptions amidst the crisis, and mitigating its adverse effects[7,26]. Research on SCCT indicates that crisis response strategies should consist of three types: base strategies (instructing and adjusting information), primary crisis strategies, and secondary strategies. Regardless of the type of crisis attribution, the information strategy—which includes instructing and adjusting information—serves as the initial response and is referred to as the base crisis response or information strategy. This form of communication must be provided in all crisis situations[7,27]. However, the effects of information strategies on reputation and supportive intentions across various crises has not been thoroughly investigated in crisis communication research[11]. Some studies have indicated that information strategies can help recover organization reputations or influence public behavior during preventable events[9,10]. Zhao et al. (2020)[12] discovered that instructing information improves public perception of reputation across all three crisis types. While previous research has demonstrated the beneficial effects of information techniques in a variety of crisis scenarios, no studies have delved into how their effectiveness varies by crisis type. This study aims to investigate the effectiveness of information strategies within a preventable-type crisis in the context of higher education management.

Prior academic research suggests that, an organization's crisis response strategy should contain instructing and adjusting information whenever possible[6,22]. Park (2017)[11] contends that employing foundational strategies, specifically the dissemination of instructing and adjusting information, augments individuals' inclination to engage in supportive actions in the context of crisis management. Some scholars have also conducted in-depth explorations into the realm of instructing and adjusting information, specifically delving deeper into the impact of self-efficacy and proxy-efficacy messages on organizational reputation[10]. Furthermore, some scholars have constructed and pioneered the role of instructing and adjusting information types, such as through experiments assessing how the presence or absence of this information influences reputation and supportive behaviors during a crisis[28,29]. Scholars have suggested that concretely formulated information strategies may be more effective due to their tangible and action-oriented nature, whereas abstractly formulated information strategies could be more effective as they permit the coexistence of diverse interpretations[30]. Yet, little consensus exists about how concrete versus abstract information construal influences the effectiveness of crisis information strategies, such as organizational reputation and supportive intentions.

Given the specific attributes of information strategy and the levels of construal, namely concrete and abstract, this study advances the following research hypotheses:

H1: Concrete information strategies will lead to better organizational reputation(H1a), supportive intention(H1b) than abstract information strategies.

Temporal and spatial distance

Construal-Level Theory (CLT) posits that temporal distance (linked to time) and spatial distance (associated with space) represent two dimensions of psychological distance that shape the construal of events[15]. Temporal and spatial distance focus on the public's perception of information. This psychological distance affects information interpretation, which, in turn, influences individual responses. The public's psychological perception of information is intimately related to persuasion mechanisms. Specifically, the persuasive power of information is influenced by its construal level, which affects individuals' perceptions of organizational reputation and supportive behaviors[31]. According to research on temporal distance, distant events are perceived as more important than near occurrences, and such temporal changes influence participants' perception. Similarly, previous studies on spatial distance indicate that the construal of spatially near versus distant events affects participants' behaviors[32]. In particular, individuals may construe events in distinct ways depending on the temporal or spatial distance from the events themselves[32]. This offers guidance for expanding threat-related concepts within the context of crisis communication. Temporal and spatial distance, which aid in shaping individuals' reactions to events, also modifies their construal of those events.

A range of studies has thoroughly explored the connection between construal levels and various dimensions of psychological distance[19,33,34]. Furthermore, scholars have delved deeper into exploring the role of interactions among the various dimensions of psychological distance in evaluating a firm's products[35]. Public perception is gaining significant importance in this context. Scholars have extensively examined the relationship between psychological distance and public perceptions in various scenarios. These public perceptions encompass multiple factors, including personal judgments, attitudes, and behaviors[22]. In the fields of organizational studies and crisis communication, temporal and spatial distance have received considerable attention and application[36]. Consequently, it is plausible that these dimensions of psychological distance could potentially influence the public's judgments and attitudes towards a university's reputation following a crisis, as well as their supportive intentions towards it. Taking this into account, the subsequent research hypotheses have been established:

H2: Near temporal distance will lead to better organizational reputation (H2a), supportive intention(H2b) than far temporal distance.

H3: Close spatial distance will lead to better organizational reputation (H3a), supportive intention (H3b) than distant supportive intention.

Information construal and psychological distance

Construal Level Theory (CLT) offers a novel lens through which organizations can comprehend the processes underlying public information processing. This theory elucidates that construal levels pertain to individuals' perceptions and mental representations of events, emphasizing the cognitive processes that undergird these representations and the significant impact of psychological distance on the level of mental construal applied to events[32]. From an informational perspective, the public tends to categorize abstract, generalized, and decontextualized information as high-level construal information. Conversely, specific, detailed, and contextualized information is deemed low-level construal information[13]. Moreover, individuals engage either a high or low level of construal while processing information, interpreting events, and making decisions[15]. This is due to the fact that the impact of distance on the quality of decisions is contingent upon whether the emphasis is placed on the low-level feasibility features or the high-level desirability features of the information. Lynch and Zauberman (2007)[37] discovered that decisions are more reasonable when made from a closer temporal, geographical viewpoint. Scholars have also suggested that in order to increase the persuasiveness of a message referring to distant times or locations, it should emphasize high-level attributes, as the importance of feasibility decreases with increasing distance[31,38]. Some scholars have identified construal level as a contextual variable within events, considering psychological distance as a contextual cue that influences construal level[39].

Crisis communication research has been expanded by introducing psychological distance, for instance, prior studies have delved into the effects of varying crisis response strategies concerning psychological distance[19]. Additionally, some in-depth dimensions have also been studied, such as how temporal distance influences supportive behavioral intentions[40]. Extending beyond these insights, scholars have also sought to integrate other factors within crisis communication with psychological distance to uncover diverse effects. For instance, researchers have examined the effects of crisis severity and various dimensions of psychological distance on organizational reputation and supportive intentions[41]. However, the relationship and effects between the abstractness or concreteness of information and psychological distance remain under-explored areas meriting deeper investigation.

Our primary objective in the present research is to assess the effectiveness of concrete and abstract information strategies within the context of preventable crises. We operationalize effectiveness in terms of organizational reputation and supportive intention[7]. A conceptual model of information communication for preventable crises is proposed based on the reviewed literature (see Fig. 1). With regard to these aims, formulate the following researchhypotheses:

H4: Concrete information strategies with near (vs. far) temporal distance are more effective for organizational reputation (H4a), supportive intentions (H4b).

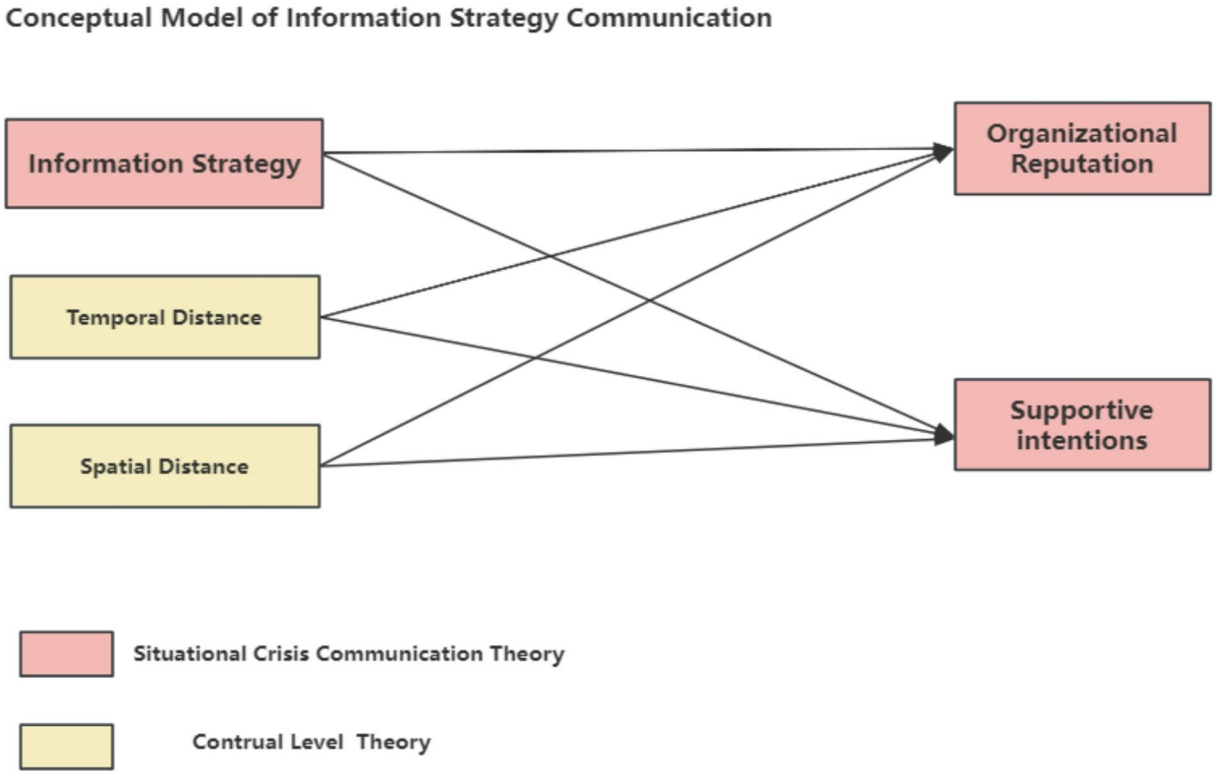

Fig. 1. Conceptual Model of Information Strategy Communication.(Source(s): Authors' own work).

H4.1: Abstract information strategies with far (vs. near) temporal distance are more effective for organizational reputation (H4.1a), supportive intentions (H4.1b).

H5: Concrete information strategies with close (vs. distant) spatial distance are more effective for organizational reputation (H5a), supportive intentions (H5b).

H5.1: Abstract information strategies with distant (vs. close) spatial distance are more effective for organizational reputation (H5.1a), supportive intentions (H5.1b).

We conducted a between-subjects factorial experiment based on three variables: information strategies, temporal distance, and spatial distance, to identify the hypotheses and assess their effectiveness. In the "concrete information strategies" condition, participants read a crisis response statement with detailed and specific information, with temporal and spatial distance manipulated as "near" and "close," respectively. In contrast, the "abstract information strategies" condition presented the same crisis response using generalized and abstract language, with temporal and spatial distance manipulated as "far" and "distant." This manipulation follows prior operationalizations of CLT in crisis communication studies[15].

Method

This study utilized a survey experiment to ascertain whether universities can repair an organization's reputation and garner increased support from stakeholders in a preventable crisis. To test the interplay impact of information strategy, temporal distance, and spatial distance in preventable crisis events, researchers conducted a between-subjects factorial experiment with a 2 (information strategy: concreteness vs. abstractness) × 2 (temporal distance: near vs. far) × 2 (spatial distance: close vs. distant) design, yielding eight conditions. Participants were randomly allocated to one of the aforementioned eight conditions, ensuring that each subject experienced only one condition.

All statistical analyses were performed with IBM SPSS Statistics version 25.0. In the main study, manipulation checks were performed using independent-samples t-tests, and one-way and two-way analyses of variance (ANOVA) were used to assess the research hypotheses.

A G*Power3.1 sample estimation was used to compute the sample size needed. The main objective of this sample size calculation is to ensure that the statistical power of the study is at an acceptable level ($1-\beta = 0.80$) to detect an anticipated effect size (f = 0.25) at a significance level of $\alpha = 0.05$, considering a potential 5% dropout rate. The total sample size is 128, and the minimum size for each group is 16. Considering instances of

non-response or invalid responses, and to further enhance the credibility of data analysis, it has been decided to adjust the sample size to 30 participants per group.

Post hoc power analyses (G*Power 3.1) indicated strong statistical power for our 2 × 2 × 2 design ($N = 245$). All main effects had > 95% power ($\eta^2 \geq 0.06$), and even the smallest effects (information strategy × spatial distance, $\eta^2 \approx 0.035$-0.037) achieved adequate power (84–86%). The sample size was thus adequate to detect all significant effects.

Comparative benchmarking

Sampling method

This study will employ convenience sampling to select participants, leveraging readily accessible sources like social media platforms, Baidu Tieba, and Tencent QQ groups to collect data quickly and efficiently. Invitations to participate will be disseminated through these online channels.

The subjects in this study comprised of university students aged 16 years or older. Overall, a total of 292 undergraduates enrolled in full-time undergraduate institutions of higher education located in Chengdu, China, participated in the survey. As an incentive for their participation, participants were compensated with ¥1.5 for their involvement. Among the 292 complete responses, 47 (16.09%) were excluded due to failing an attention check, yielding a sample of 245 participants (83.91%, 47.8% female).The demographic characteristics of the sample for all studies are presented in Table 1.

Procedure

The experiment was conducted online through the CRM questionnaire platform. After giving informed consent, participants were randomly assigned to one of eight experimental scenarios. Table 2 describes the distribution of the participants in each scenario. Participant were presented with a Sina Weibo topic about a fictional food safety incident at TianLi university (see Supplementary A for details). Next, participants viewed a written statement issued by TianLi university. This statement included information strategies such as instructing information, which detailed what happened during the crisis, its potential implications for the public, and the recommended actions for the public to take, and adjusting information, which communicated the measures the organization was taking to prevent a recurrence of the crisis (see Supplementary B for details). After being exposed to the university's crisis response, all participants answered questions designed to measure their perception of the organization's reputation and their supportive intention towards it. All the written scenarios and questions were presented in Chinese.

Items	Categories	Frequency	Percent
Gender	Male	128	52.20%
	Female	117	47.80%
Age	16–20 years	84	34.30%
	21–25 years	91	37.10%
	26–30 years	70	28.60%
Level of education	Freshman	39	15.90%
	Sophomore	52	21.20%
	Junior	87	35.50%
	Senior	67	27.30%
Major category	Philosophy	24	9.80%
	Economics	20	8.20%
	Law	21	8.60%
	Education	14	5.70%
	Literature	19	7.80%
	History	23	9.40%
	Science	18	7.30%
	Engineering	21	8.60%
	Agriculture	21	8.60%
	Medicine	17	6.90%
	Management	21	8.60%
	Arts	13	5.30%
	Others	13	5.30%
Experienced issues with food hygiene	No	165	67.30%
	Yes	80	32.70%

Table 1. Demographic profile of the participants.(Source(s): authors' own work). Note: The percentages are still calculated using the total number of participants (245).

Scenario	Information strategy	Temporal distance	Spatial distance	Frequency	Percent
1	Concrete	Near	Close	36	14.7%
2	Concrete	Near	Distant	32	13.1%
3	Concrete	Far	Close	29	11.8%
4	Concrete	Far	Distant	29	11.8%
5	Abstract	Near	Close	30	12.2%
6	Abstract	Near	Distant	31	12.7%
7	Abstract	Far	Close	29	11.8%
8	Abstract	Far	Distant	29	11.8%
	Total			245	100.0%

Table 2. Distribution of participants in each scenario.(Source(s): authors' own work).

Manipulations

Temporal distance. Temporal distance refers to the timeframe within which a crisis response occurs, incorporating two dimensions: near and far[15]. This variable was manipulated by indicating that TianLi university released a statement either one day (near) or eleven days (far) after the crisis became publicly known, following the methodology established by Stephan, Liberman, and Trope (2010)[42].

Spatial Distance. Two maps were used to depict two locations to manipulate spatial distance in the scenario. Chengdu City, China, was described as 'close to your home,' while Rio de Janeiro, Brazil, was presented as 'distant from your home'[43]. Additionally, participants were shown a map depicting these two cities (see Supplementary C for details).

Information strategies concreteness/abstractness. In the abstract information strategies condition, TianLi university used abstract wording and general content intended to convey the defining aspects of the event. In terms of concrete information strategies, TianLi university provided many details and emphasized specific actions and features[16]. Both kinds of conditions had the same information strategies, expressing what happened, what the public should do, and what the organization was doing (see Supplement B for details). Participants may randomly choose one of the groups based on the information strategies. Four items were used to assess the information strategy, including statements such as: "TianLi university informs students of the specific details of how to protect their safety and rights in the event of a food safety issue," "TianLi university's information on protecting students' safety and rights in the official statement is generalized," "TianLi university informed the public of the action taken and details of the action to be taken," and "TianLi university's mention of the actions already taken and those to be taken in the official statement is generalized." A 7-point Likert scale was employed for all measures, with responses ranging from 1 (strongly disagree) to 7 (strongly agree).

Manipulation checks

The study employed an independent samples t-test to verify the effectiveness of the experimental manipulation of the three independent variables: information strategy, temporal distance, and spatial distance. The information strategy index consisted of four items, two measuring concreteness and two measuring abstractness. Results from the t-test revealed a significant difference between the concrete (t (231.53) = 50.45, $p < .000$) and abstract (t (231.531) = – 50.45, $p < .000$) information strategy. Participants who were exposed to a statement with a concrete information strategy ($N = 126$, M = 6.20, SD = 0.69) rated it as significantly more concrete than those exposed to an abstract strategy statement ($N = 119$, M = 2.11, SD = 0.52) on the concreteness statement. The analysis results further revealed that participants assigned to the abstract condition rated the strategy as significantly more abstract ($N = 119$, M = 5.9, SD = 0.52) than those in the concrete condition ($N = 126$, M = 1.98, SD = 0.69) when responding to the abstractness index.

The temporal distance index comprised two items: one evaluating the "near" scenario and the other the "far" scenario. The results indicated significant differences between the responses for the near (t (232.21) = 46.10, $p < .000$) and far (t (232.21) = -46.10, $p < .000$) temporal distance conditions. Participants who were presented with a statement reflecting a near temporal distance rated it significantly higher on the near index ($N = 129$, M = 5.89, SD = 0.73) compared to those who were presented with a statement reflecting a far temporal distance ($N = 116$, M = 2.16, SD = 0.53).Similarly when assessing the far index, participants rated the statement with a far temporal distance ($N = 116$, M = 5.84, SD = 0.53) as significantly farther than the statement with a near temporal distance ($N = 129$, M = 2.11, SD = 0.73).

The spatial distance index included two items: one measuring "close" spatial distance and the other measuring "distant" spatial distance. The analysis showed significant differences between the close (t (242.95) = 47.37, $p < .000$) and distant (t (242.95) = -47.37, $p < .000$) conditions. Participants who were presented with a statement reflecting close spatial distance rated it significantly higher on the close index ($N = 124$, M = 6.26, SD = 0.71) than those who received a statement reflecting distant spatial distance ($N = 121$, M = 1.99, SD = 0.70). Similarly, when responding to the distant index, participants rated the statement describing a distant spatial distance ($N = 121$, M = 6.01, SD = 0.70) as significantly farther than the one describing a close spatial distance ($N = 124$, M = 1.74, SD = 0.70).

Measures

Information Strategies Effectiveness. We measured information strategy effectiveness with a set of items measuring the two key indicators—organizational reputation and supportive intention. We improved the measuring items based on previous studies. A 7-point Likert scale was employed for all measures, with responses ranging from 1 (strongly disagree) to 7 (strongly agree).

Organizational reputation refers to the collective perception of an organization held by its stakeholders, which develops and is communicated over time[7]. In this study, it is understood as the organization's reputation following a crisis. It acts as a form of feedback for the organization, reflecting how it is perceived by different stakeholder groups[44–46].We enhanced the measurement of organizational reputation by building on the research of Huang and DiStaso (2020)[16] and Coombs(2006)[27]. Eight items were included for organizational reputation (university reputation) (e.g., I have a good feeling about TianLi university; $\alpha = 0.991$).

Supportive intentions refer to the actions that stakeholders undertake with the purpose of supporting the organization[7]. Supportive intention was adapted from Sung and Yang (2009)[45]and Coombs (1999)[47]. Twelve items were included for supportive intentions (e.g., I would say nice things about TianLi university to other people; $\alpha = 0.993$).

Results

In this study, we first conducted 2 (between-subjects information strategy: concreteness vs. abstractness) × 2 (between-subjects temporal distance: near vs. far) × 2 (between-subjects spatial distance: close vs. distant) measures analyses of variance with a two-level within-subjects factor (information strategy: organizational reputation vs. supportive intentions). The first focus of our study was to analyze the main effects of the independent variables (information strategy, temporal distance, and spatial distance) on the dependent variables, such as organizational reputation and support intention. Subsequently, we investigated the interaction effects between these variables.

Main effects

This study developed sets of research hypotheses (H1-H3) to investigate the main effects. To verify these hypotheses, a sequence of one-way ANOVAs was applied. H1 posited that concrete information strategies would result in a more favorable organizational reputation (H1a) and higher supportive intention (H1b) than abstract information strategies. Results from the analysis demonstrated that information strategy significantly influences organizational reputation ($F(1, 243) = 384.539$, $p < .001$). Significant differences were observed between the concrete ($N = 126$, $M = 47.95$, $SD = 5.617$) and abstract information strategy groups ($N = 119$, $M = 28.44$, $SD = 9.560$). Therefore, H1a was supported.H1b proposed that information strategy would influence supportive intention. The findings revealed that information strategy significantly impacts supportive intention ($F(1,243) = 370.624$, $p < .001$). Additionally, participants who read the concrete strategy ($N = 126$, $M = 71.35$, $SD = 7.91$) showed greater supportive intention than those in the abstract strategy group ($N = 119$, $M = 40.78$, $SD = 15.86$). Thus, H1b was confirmed.

H2 posited that near temporal distance will lead to better organizational reputation(H2a), and supportive intention (H2b) than far temporal distance. The analysis from the one-way ANOVA demonstrated a statistically significant impact of near temporal distance on organizational reputation ($F(1, 243) = 51.801$, $p < .001$). Significant differences were observed between the near temporal distance group ($N = 129$, $M = 43.43$, $SD = 9.275$) and the far temporal distance group ($N = 116$, $M = 32.96$, $SD = 13.299$). Thus, H2a was confirmed.H2b proposed that temporal distance would influence supportive intention. The results showed a statistically significant correlation between temporal distance and supportive intention ($F(1,243) = 50.470$, $p < .001$). Participants exposed to the near temporal distance condition ($N = 129$, $M = 64.232$, $SD = 14.76$) showed higher levels of supportive intention than those assigned to the far temporal distance group ($N = 116$, $M = 47.90$, $SD = 20.95$). Thus, H2b was confirmed.

H3 predicted that close spatial temporal distance will lead to better organizational reputation(H3a), and supportive intention (H3b) than distant information strategies. Analysis using one-way ANOVA demonstrated that spatial distance significantly influenced organizational reputation ($F(1, 243) = 14.425$, $p < .001$). The analysis revealed a significant difference between the close spatial distance group ($N = 124$, $M = 41.38$, $SD = 11.35$) and the distant spatial distance group ($N = 121$, $M = 35.49$, $SD = 12.929$), supporting H3a.H3b proposed that spatial distance would impact supportive intention. The analysis revealed a significant impact of spatial distance on supportive intention ($F(1,243) = 17.061$, $p < .001$). Specifically, participants in the close spatial distance group ($N = 124$, $M = 61.48$, $SD = 17.36$) demonstrated greater supportive intention than those assigned to the distant condition ($N = 121$, $M = 51.41$, $SD = 20.69$), supporting H3b.

Interaction effects

The fourth research hypotheses posed in this study aims to investigate the interaction between information strategy and temporal distance, analyzed through a two-way between-groups ANOVA. The findings of the analysis showed significant interactions between these two factors in terms of organizational reputation (H4a) ($F(1, 241) = 34.14570$, $p < .000$, see Fig. 2) and supportive intention (H4b) ($F(1, 241) = 26.369$, $p < .001$; see Fig. 2).

A subsequent analysis illuminated that participant perceived a higher organizational reputation when presented with a concrete information strategy under a near temporal distance scenario ($M_{near} = 6.33$, $SD = 0.53$) compared to a far temporal distance ($M_{far} = 5.60$, $SD = 0.68$; $F(1, 241) = 34.185$, $p < .001$). Conversely, for an abstract information strategy, participants assigned a lower organizational reputation under a far temporal distance ($M_{far} = 2.64$, $SD = 0.83$) than under a near temporal distance ($M_{near} = 4.42$, $SD = 0.77$; $F(1, 241) = 189.131$, $p < .001$).

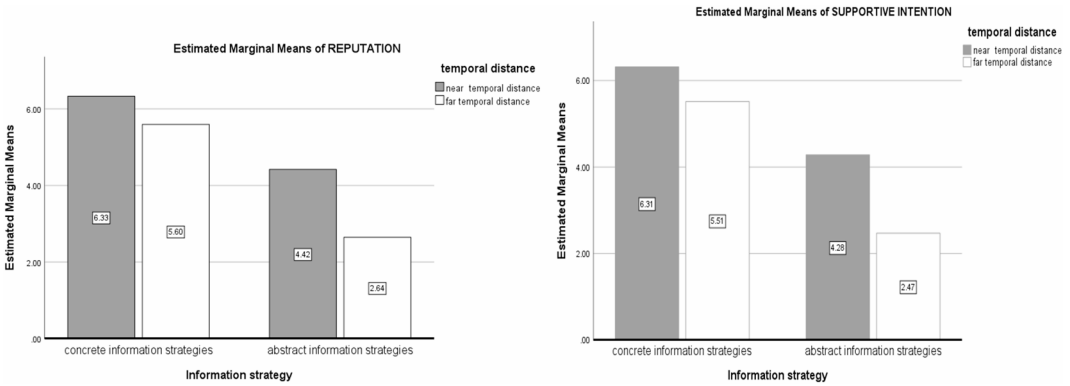

Fig. 2. Effects of the interaction between information strategy and temporal distance on organizational reputation and supportive intention.(Source(s): Authors' own work).

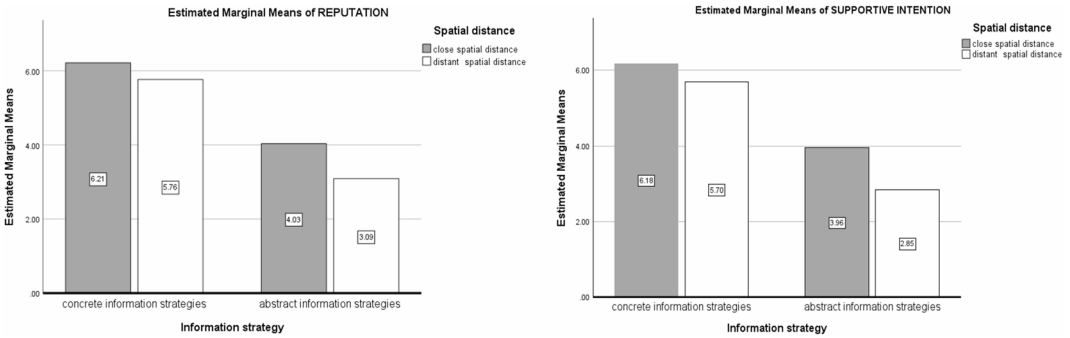

Fig. 3. Effects of the interaction between information strategy and spatial distance on both organizational reputation and supportive intention.*Source(s): Authors' own work.

Similarly, participants expressed a higher supportive intention towards a concrete information strategy under a near temporal distance (M_{near} = 6.31, SD = 0.93) than under a far temporal distance (M_{far} = 5.51, SD = 0.10; F (1, 241) = 33.757, $p < .001$). However, for an abstract information strategy, the supportive intention was lower under a far temporal distance (M_{far} = 2.470, SD = 0.101) compared to a near temporal distance (M_{near} = 4.281, SD = 0.99; F (1, 241) = 164.680, $p < .001$). Thus, the findings support H4 but do not support H 4.1.

The fifth research hypothese in this study aims to explore the interaction between information strategy and spatial distance, employing a two-way between-groups ANOVA for analysis. The analysis results demonstrated significant interaction effects of these factors on organizational reputation (H5a) (F (1, 241) = 4.536, $p = .034$, see Fig. 3) and supportive intention (H5b) (F (1, 241) = 6.743, $p = .010$, see Fig. 3).

A subsequent analysis revealed that participants perceived a higher organizational reputation when presented with a concrete information strategy under a close spatial distance scenario (M_{close} = 6.21, SD = 0.66) compared to a distant spatial distance ($M_{distant}$ = 5.76, SD = 0.68; F (1, 241) = 179.767, $p < .001$). In contrast, for an abstract information strategy, participants assigned a lower organizational reputation under a distant spatial distance (M distant = 3.08, SD = 1.08) than under a close spatial distance (M_{close} =4.02, SD = 1.12; F (1, 241) = 264.231, $p < .001$).

Similarly, participants expressed a higher supportive intention towards a concrete information strategy under a close spatial distance (M close = 6.1795, SD = 0.63) than under a distant spatial distance ($M_{distant}$ = 5.6967, SD = 0.60; F (1, 241) = 169.927, $p < .001$). However, for an abstract information strategy, the supportive intention was lower under a distant spatial distance ($M_{distant}$ = 2.8472, SD = 1.23) compared to a close spatial distance (M_{close} = 3.959, SD = 1.17; F (1, 241) = 273.698, $p < .001$). Consequently, the results support H5, while H5.1 is not supported.

Discussion

The results confirmed all hypotheses concerning the main effects of the information strategy, temporal and spatial distance on organizational reputation and supportive intention, showing significant outcomes. Furthermore, to examine the interaction effects involving: (1) information strategy and temporal distance, (2) information strategy and spatial distance on the dependent variables, two-way ANOVA tests were performed to identify any significant interactions.

Accordingly, the results of this research indicate that concrete information strategies were more effective when the recipient was temporally closer to (versus further away from) the organization issuing the information

strategies. Similarly, the analysis revealed that concrete information strategies were more effective when the recipient was spatially closer to (versus further away from) the organization issuing the information strategies. Psychological distance is linked by participants to high-level construal, whereas psychological proximity is associated with low-level construal. Meanwhile, they also argue that people tend to react more intensely to events that are closer in time and space, and to situations affecting themselves compared to those involving others[15]. Clearly, concrete information strategies and near temporal and spatial distances demonstrate a consistency with low construal level and near psychological distance, thereby creating a sense of proximity to the event. This proximity leads to stronger feelings and effects among the audience[15].

However, abstract information strategies did not prove to be more effective when the recipient was psychologically distant from (versus close to) the organization issuing the information strategies in terms of temporal distance. Conversely, the results of the multiple comparisons indicated that abstract information strategies had greater effectiveness when recipients felt psychologically closer to the organization than when they felt distant. This effect contrasts with previous research findings, which suggest that abstract information and far psychological distance lead to more favorable effectiveness[16,40]. It is important not to overlook Trope and Liberman's (2010)[15] two criteria and assumptions that altering a high-level feature significantly influences an event's meaning more than modifying a low-level feature, and that low-level features are more dependent on high-level features for their meaning. Clearly, in a crisis event, information represents a central element, embodying high-level features, while time and space are considered low-level features. This emphasizes that the role of temporal and spatial distance is influenced by the information strategy, with the latter having a more substantial effect on public perceptions.

The interaction effect reveals that the concreteness and abstractness of information strategies contribute to a more pronounced psychological distance disparity among the public. Specifically, under similar information strategies, information receivers who perceive temporal or spatial distances as near or close exhibit stronger effects on organizational reputation and supportive intention compared to those who perceive them as far or distant. This underscores the fact that the public is more concerned with crises occurring closer in time and space, and that concrete and detailed information is more effective in helping organizations repair their reputation while gaining greater public support. Reyt and Wiesenfeld (2015)[48] proposed that construal levels might be specific to particular domains. They suggested that individuals might consistently engage in abstract or concrete thinking across different environments; however, their construal can shift based on their social role. For example, in a university food safety crisis, students are likely to prioritize food safety concerns, and their role as students may elicit a low-level construal, leading to a more intense response.

It is worth noting that abstract information strategies when paired with different psychological distances, are beneficial since they provide a generalized perspective of information. From the perspective of the organizations involved, crises are inherently unpredictable and are frequently marked by ambiguity surrounding their causes, effects, and resolution methods[43]. Therefore, crisis response strategies are frequently general in nature, allowing them to be used in a wide range of situations[44]. Providing detailed information can be unnecessarily restricted or even misleading[47]. Employing abstract information strategies allows communicators to avoid making definitive statements that could later prove inaccurate before the causes of the crisis are fully investigated[49]. Furthermore, the utilization of ambiguous language in information strategies offers the additional advantage of projecting a sense of control and has the potential to cater to the diverse informational needs of various stakeholders[10,29]. Our research, however, underscores the importance of considering the public's perspective, revealing that they prefer concrete and detailed information strategies. Consequently, organizations should prioritize releasing information promptly, with a greater emphasis on thoroughness and speed, as this approach is more likely to garner public support.

Implication

Theoretical implications

This study potentially reconciles seemingly contradictory findings in the previous literature. The topic of abstract information has been a contentious issue[50]. Prior research has shown that abstract information perceived as being at a large psychological distance can enhance organizational reputation and supportive intentions[16]. However, this study demonstrates that contrary to these findings, abstract information with a perceived far psychological distance actually diminishes perceived organizational reputation and supportive intentions. Our research offers a novel perspective by examining univerisity's information and psychological distance from the public's viewpoint, thereby contributing a fresh interpretation that enriches traditional research framed from an organizational stance.

This also underscores how our research contributes to the recent scholarship on the influence of construal mindsets on the effectiveness of information strategies in non-organizational settings[51]. While prior works directly manipulated construal mindset[52], our study manipulated distance to align with the naturally occurring variations in the context of organizational information strategies. The perspective of psychological distance and construal level is subtly embedded within a vast array of previously investigated organizational information strategies and contextual factors, offering a unique lens through which to view and analyze these complex phenomena[36,53]. Adopting a construal-level lens can offer a fresh interpretation of past findings and facilitate the integration of the crisis communication domain. This interpretation underscores the crucial significance of incorporating psychological distance and construal level into the formulation of effective information strategies across a spectrum of diverse contexts.

Practical implications

The paramount value garnered from this study lies in its revelation that the construal level and psychological distance held by information strategy recipients towards the crisis-affected organization markedly shape

their responses to the organization's communication efforts. As such, the emergency management director would be wise to meticulously consider their audience in tandem with the nature of the information issued. For organizations with stakeholders residing predominantly in close proximity, embracing a more tangible communication style may be imperative. Timely communication—particularly during the first 24 hoursafter a crisis—can significantly enhance public perceptions of the organization. During the early investigative phase, when the nature of the crisis remains ambiguous, abstract information strategies are evidently more practical, as they assist minimize misinformation and prevent organizational missteps. Once the investigation yields clear results, moving to concrete information strategies from the public's perspective becomes crucial in rebuilding trust. This strategic approach will empower organizations to effectively navigate crises and their subsequent responses, thereby facilitating the restoration of tarnished reputations and enhancing public supportive intentions. Additionally, communicators should adjust their communication strategies to fit the context and meet the needs of more diverse audiences.

Limitation and future direction

A limitation of our experimental design lies in the fact that we did not investigate an actual crisis scenario, which could have facilitated the measurement of people's genuine supportive intentions. Hence, it is imperative for future research to explore the effects of information strategies on organizational reputation and supportive intentions within the realm of authentic crisis scenarios. One key limitation of this study is the use of convenience sampling, which may limit the generalizability of the findings. It may have resulted in sampling bias because the participants may not fully represent the broader target population. Future studies should consider employing probability sampling techniques to enhance the external validity and applicability of the results across various settings and populations. Another limitation of this study is that the Construal Level Theory (CLT) defines psychological distance as having four dimensions: social, spatial, temporal, and hypothetical. This study focused on spatial and temporal distance in the context of crisis. Given the significant importance of social distance in shaping public perception, future research should consider incorporating social distance into crisis communication frameworks. Furthermore, variation in stimulus length may represent a potential limitation. Inconsistencies in length may introduce confounding factors; therefore, future studies should further control for stimulus length to reduce its impact on the results.

Nevertheless, it is worth noting that the variables we employed to indicate the effectiveness of information strategies have been extensively studied in the literature as key indicators of such effectiveness[7,18,34]. Future research in this domain should be conducted in the field to comprehensively examine the multifaceted relationship between information strategy, organizational reputation, and supportive intention. Given that the current study was conducted within the context of Chinese universities, which represent a non-profit organizational setting, future research may explore the generalizability of these findings by examining whether they can be extended to other non-profit organizations. This would help determine the extent to which the observed effects can be generalized across different contexts.

Conclusion

Our findings reveal that information strategy, temporal distance, and spatial distance are intricately correlated with organizational reputation and supportive intention. Specifically, information strategy emerges as a crucial predictor of both organizational reputation and supportive intention. From a construal level perspective, under a concrete information strategy, organizational reputation and supportive intention tend to be higher for near temporalor spatial distances. Conversely, for far temporal or spatial distances, these outcomes are minimized under an abstract information strategy. This study emphasizes the significance of customizing information strategies to align with the psychological distance of the audience, as it can profoundly impact their perceptions of organizational reputation and their inclination to support the organization during a crisis.

In crises, the information strategy serves as a central feature, representing a high-level construal, whereas temporal and spatial distances are considered peripheral features, symbolizing low-level construal, both of which exert significant influence on crisis outcomes. Furthermore, our research demonstrates that when the construal levels of the information strategy and temporal and spatial distances are aligned—particularly at the low level—the most favorable crisis responses are observed. When the psychological distance and the information strategy have different construal levels, a closer psychological distance produces more beneficial effects than a farther one when the information strategy is consistent. This contrasts with perspectives from an organizational viewpoint. Notably, the application of concrete information strategies should align with the organization's investigative stage. These strategies are particularly appropriate for the crisis period following the clarification of investigative findings.

Given the differences between organizational and public perspectives, we posit that, in addressing crises, higher education institutions must continuously update the public to mitigate the risk of inaccuracies or information gaps. Ensuring that the public's information needs are met and preventing an information vacuum is crucial, as such gaps could foster the spread of rumors and ultimately lead to negative public sentiment and reputational damage. This approach is consonant with the principles of transparency and responsiveness in crisis communication, emphasizing the importance of prioritizing the public's well-being and information needs. It should be highlighted that abstract information strategies offer broader applicability in a variety of crisis scenarios, particularly when faced with uncertainty, helping to prevent errors and misinformation. Determining whether to release concrete or abstract information based on the specific stage of the crisis is a practical and feasible approach.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request via e-mail gs63796@student.upm.edu.my.

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Author contributions

Xiaoyu Jiang: Conceptualization, methodology, software, validation, formal analysis, investigation, resources, data curation, writing—original draft preparation; Shougui Pang: writing—review and editing, visualization, project administration, funding acquisition; Syafila Kamarudin: supervision, validation, formal analysis, investigation, resources ; Shuhui Li: writing—review and editing, visualization; Kai Wang: software, investigation, data curation. All authors read and approved the final manuscript.

Competing interests

The authors declare no competing interests.

Ethics approval

The studies involving human participants were reviewed and approved by Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (Approval Number: JKEUPM-2024-215). The participants provided their written informed consent to participate in this study. All methods were performed in accordance with relevant guidelines and regulations. All authors approved the final manuscript and the submission to this journal.

Additional information

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