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Enhancing employee communication behaviors for sensemaking and sensegiving in crisis situations

Effective
internal crisis
communication

Strategic management approach for effective internal crisis communication

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Abstract

Purpose – The purpose of this paper is to explore the organizational effectiveness of internal crisis communication within the strategic management approach, whether it enhanced voluntary and positive employee communication behaviors (ECBs) for sensemaking and sensegiving. By doing so, this study provides meaningful insight into: new crisis communication theory development that takes a strategic management approach, emphasizing employees' valuable assets from an organization, and effective crisis communication practice that reduces misalignment with employees and that enhances voluntary and positive ECBs for the organization during a crisis.

Design/methodology/approach – This study conducted a nationwide survey in the USA among full-time employees ($n = 544$). After dimensionality check through confirmatory factor analysis, this study tested hypothesis and research question by conducting ordinary least squares multiple regression analyses using STATA 13.

Findings – This study found that strategic internal communication factors, including two-way symmetrical communication and transparent communication, were positive and strong antecedents of ECBs for sensemaking and sensegiving in crisis situations, when controlling for other effects. The *post hoc* analysis confirmed these positive and strong associations across different industry areas.

Originality/value – This study suggests that voluntary and valuable ECBs can be enhanced by listening and responding to employee concerns and interests; encouraging employee participation in crisis communication; and organizational accountability through words, actions and decisions during the crisis. As a theoretical implication, the results of this study indicate the need for crisis communication theories that emphasize employees as valuable assets to an organization.

Keywords Internal communication, Public relations, Crisis communication, Strategic communication, Employee communication

Paper type Research paper

Organizational crisis, as an unexpected event, is a time of ambiguity, uncertainty and struggle to regain control within an organization (Coombs, 2015; Miller and Heath, 2004). In terms of the internal context of an organization, a crisis situation inherently yields ambiguity and uncertainty for internal publics (i.e. employees) (Ulmer *et al.*, 2015). Such characteristics defy interpretation and impose severe demands on employees' sensemaking (i.e. searching for meaning) (Weick, 1988). In this regard, Weick (1988, 1993) noted that the less adequate the sensemaking process directed at a crisis, the more likely it is the crisis will get out of control. However, it often happens that employees' sensemaking processes are impeded by misalignment between an organization and employees, as organization's communication activities during a crisis are often misinterpreted, resisted, or rejected by employees (Daymon, 2000; Mazzei *et al.*, 2012). Moreover, organizations can sometimes exacerbate the impact of the crisis through poor communications with employees resulting in delusion and cynicism from the latter (Goodman and Hirsch, 2010; Mazzei and Ravazzani, 2011).



As employees' communication behaviors can have particular internal and external impacts through various kinds of social networks, the misinterpretation of organizational messages can make a crisis worse endangering the organization (Heide and Simonsson, 2014; Mazzei and Ravazzani, 2011).

In this sense, the role of strategic internal communication is vital in crisis situations where there is a high level of communication ambiguity and a strong need for sensemaking (Strandberg and Vigsø, 2016; Weick, 1988). Effective internal crisis communication reduces uncertainty and ambiguity by filling the communication gap between management and employees; to achieve this, organizational management should understand employees as one of the important strategic constituencies (i.e. internal publics) to be communicated with (Heide and Simonsson, 2014; Ulmer *et al.*, 2015). Despite the need and importance of strategic internal communication, the extant research erroneously assumes that employees would become involved in the crisis communication without hesitation (Falkheimer and Heide, 2015). Previous studies focus dominantly on symbolic message strategies used to protect the organization's image among external publics (customers), not internal publics (employees), during a crisis (Mazzei and Ravazzani, 2015; Johansen *et al.*, 2012).

Against this backdrop, scholars recently have called for new approaches to crisis communication in order to enhance theoretical developments (Liu and Fraustino, 2014; Paquette, 2015). One effort is to shift the focal point of current research from an external dimension to an internal dimension, one that emphasizes communicating with employees and understanding their impact as crisis communication senders as well as receivers (Heide and Simonsson, 2014; Strandberg and Vigsø, 2016). In this sense, researchers suggest that managerial efforts (i.e. strategic management approach) are needed to better understand the dynamic nature of crisis in the internal dimension in terms of crisis management and communication (Grunig, 2011; Johansen *et al.*, 2012).

These backgrounds serve as the impetus for this study. Taking the strategic management approach, this study conducted a nationwide survey among full-time employees ($n = 544$) in the USA to explore organizational effectiveness of internal crisis communication and how it enhances voluntary and positive employee communication behaviors (ECBs) for sensemaking and sensegiving and their antecedents in a crisis situation where organizational sensemaking breaks down. By doing so, this study provides meaningful insight into: new crisis communication theory development that takes a strategic management approach emphasizing employees' valuable assets from an organization, and effective crisis communication practice that reduces misalignment with employees and that enhances voluntary and positive ECBs for the organization during a crisis.

Literature review

Effective internal crisis communication through understanding employees

Employee as boundary spanner. Internal crisis communication is comprised of situations in which the employees interpret and make sense of the organizational management's crisis communication (Strandberg and Vigsø, 2016). In the field of crisis communication research, to date, employees have not drawn much attention from crisis communication researchers (Frandsen and Johansen, 2011; Mazzei and Ravazzani, 2015; Strandberg and Vigsø, 2016). However, some scholars have emphasized recognizing employees as a distinct public that is worthy of individualized attention through internal communication[1] (Kang and Sung, 2017; Park *et al.*, 2014). As one of their valuable characteristics, employees engage in boundary-spanning activities[2], frequently interacting with an organization's environment (e.g. external publics) to gather, select, and relay information from the environment to decision makers or other internal members in the organization (Grunig and Repper, 1992).

These boundary-spanning activities can be very important to an organization, regardless of whether employees act as negative or positive ambassadors (Frandsen and Johansen, 2016). Employees can become the most effective advocates of the reputation as well as of the internal and external communication strategies of the company (Kim and Rhee, 2011; Mazzei *et al.*, 2012). In addition, employees can be dangerous triggers and can cause negative communication outcomes that negatively affect their company's reputation via informal networks (Kim *et al.*, 2013). Such boundary-spanning activities are conceptualized as ECBs, which emphasize positive and negative impacts of active information-seeking and -forwarding behaviors (Kang and Sung, 2017; Kim and Rhee, 2011). Accordingly, understanding employees and their communication behaviors is essential for effective crisis communication (González-Herrero and Pratt, 1996; Mazzei *et al.*, 2012).

In a crisis situation, ECBs through boundary-spanning activities become more important to an organization (Downing, 2004, 2007; Frandsen and Johansen, 2011; Kim and Rhee, 2011). Employees are receivers perceiving the crisis through instructions and information in terms of the management or the crisis management team of the organization (Frandsen and Johansen, 2011, 2016; Johansen *et al.*, 2012). At the same time, employees can be senders-information transmitters in the role of communicating with the organization, among each other, to the management, and/or across organizational boundaries—by participating in various kinds of internal and external social networks (Heide and Simonsson, 2014; Mazzei and Ravazzani, 2011). Employees' communication behaviors through boundary-spanning activities not only account for a meaning-construction process by seeking and obtaining crisis information, but also influence others' meaning constructions by disseminating and forwarding information to others in crisis situations (Albu and Wehmeier, 2014; Kim and Rhee, 2011; Lundberg *et al.*, 2012).

More specifically, employees are eager to find out what is going on and have high expectations about receiving accurate, adequate and timely crisis information provided by their organization (Heide and Simonsson, 2014; Johansen *et al.*, 2012). A scarcity of consistent information, often characterized by confusion from this lack of information, may cause employees to become more open to rumors as well as to spreading defeatist declarations (Falkheimer and Heide, 2015). In particular, rumors come from the fact that information is unavailable from formal sources (e.g. management) or is ambiguous in the conditions that employees feel are important and relevant to them (Bordia *et al.*, 2006; Difonzo and Bordia, 2000). In the crisis situation, rumors can occur due to a need for sensemaking, especially when employees are not informed accurately and timely and when their concerns are not heard (Mazzei and Ravazzani, 2011; Strandberg and Vigsø, 2016). In the same vein, employees who suffer from specific cognitive reactions and feelings as a consequence of lack of knowledge, information or competences, or lack of meaning are more likely to generate rumors and their communication behaviors exacerbate subsequent negative outcomes (loss of trust between management and employees, unnecessary turnover) in the crisis situation (Difonzo and Bordia, 2000; Frandsen and Johansen, 2011).

On the other hand, employees can play an important role as active communicators and corporate ambassadors in organizational crises if they engage in voluntary and positive boundary-spanning activities – in particular by collecting valuable information for their organization, sharing the information, and building support networks internally and externally (Kim and Rhee, 2011; Kang and Sung, 2017; Mazzei *et al.*, 2012; Ravazzani, 2016). Strandberg and Vigsø (2016) emphasize the importance of communication with employees during a crisis by suggesting active communication of crisis management in such a way that employees feel well-informed and confident during a crisis. Other scholars highlight more specific communication strategies with employees including implementing factual communication and concrete actions with explicit messages during a crisis

(Mazzei and Ravazzani, 2015). Thus, effective internal crisis management and communication reflects facilitating voluntary ECBs that actively seek and share valuable, positive information across organizational boundaries – that is, employee sensemaking process (Buzzanell, 2010; Chamlee-Wright and Storr, 2011; Olsson, 2014).

Employee communication behavior for sensemaking and sensegiving. The role of ECB is underpinned by the sensemaking process in the crisis situation, in terms of how employees create their own environments by paying attention to some information while ignoring other information (Johansen *et al.*, 2012; Maitlis and Sonenshein, 2010; Weick, 1988). Weick (1988) specifically highlights that, in a crisis situation in which organizational sensemaking breaks down, employees' understanding is facilitated by action; however, action affects the crisis and can make the situation worse[3]. Other researchers maintain the importance of ECB because employees generate the environment through actions and through their attempts to make sense of these actions (Maitlis and Sonenshein, 2010).

Sensemaking is a process engaged in by organizational members who encounter moments of ambiguity or uncertainty (organizational crisis) as they seek to clarify what is going on by extracting and bracketing cues from the environment[4] (Maitlis and Christianson, 2014; Stieglitz *et al.*, 2018). The theoretical foundation of the sensemaking process stems from cognitive processes as sense is created by attributing meaning to environmental stimuli (Stieglitz *et al.*, 2018). In other words, sensemaking in the context of a crisis involves the social processes of talk and action in order to make some plausible sense of cues, in addition to the sense that is made through connecting a cue to a frame – that is, the process of meaning creation through communication behaviors in a crisis (Gioia and Chittipeddi, 1991; Hutter and Kuhlicke, 2013; Maitlis and Sonenshein, 2010).

More specifically, it can be seen that sensemaking processes can be explained by information-seeking behavior (i.e. active information acquisition), which constructs cognitive building blocks, leading to proactive information collection in the problematic or crisis situation (Kruglanski, 1989; Kim *et al.*, 2013). As such, the employees' sensemaking process is “the search for shared meaning” through active information-seeking behavior in order to inform themselves as to “what is going on” in the crisis situation (Colville *et al.*, 2013, p. 1204). For effective internal crisis communication, the information-seeking behavior is used to explain voluntary ECBs, which involve searching for and obtaining valuable organization-related information from internal and external constituencies (Kim and Rhee, 2011; Park *et al.*, 2014). In this sense, this study proposes a new concept, ECB for sensemaking, by adopting positive information-seeking behavior to explain employees' sensemaking processes in a crisis situation. It is defined here as employees' active and voluntary communicative behaviors to create a shared understanding of information by searching for and obtaining valuable and positive organization-related information from internal and external constituencies.

Sensemaking processes can also be influenced by the communication behaviors of others, because employees – as individuals conveying voluntary communication behaviors in a crisis – disseminate acquired information internally and externally, to relevant internal personnel and groups (Heide and Simonsson, 2014; Mazzei *et al.*, 2012). In particular, employees who are more active than others will select and circulate selected information (i.e. information forwarding, active transmission) to mobilize attention, legitimacy and resources toward their problem solving (Kim *et al.*, 2013), and will shape an organizational reputation internally and externally (Kim and Rhee, 2011; Men and Stacks, 2013). For their organization, employees can engage in voluntary information-forwarding behavior, a self-propelled and positive communication behavior that describes a more active information transmitter across organizational boundaries (Kim and Grunig, 2011; Kim *et al.*, 2010; Kim and Rhee, 2011).

Employee information-forwarding behavior transmits valuable organization-related information to internal and external constituencies, which explains the process of attempting to influence sensemaking (Albu and Wehmeier, 2014; Kim and Rhee, 2011). Such a process is defined as sensegiving, referring to trying to affect the meaning construction of others toward a preferred redefinition of organizational reality in the crisis communication research (Gioia and Chittipeddi, 1991; Maitlis and Christianson, 2014). Accordingly, this study proposes a new concept of ECB for sensegiving based on active information forwarding, defined here as employees' active and voluntary communicative behaviors to influence others' sense by forwarding valuable and positive organization-related information to internal and external constituencies.

Antecedents of employee communication behaviors for sensemaking and sensegiving

In the crisis communication research, to date, scholars have predominantly relied on symbolic approach (message strategies) to demonstrate how communication can be used as a symbolic resource in an attempt to protect the image of organization (Fediuk *et al.*, 2012; Ravazzani, 2016). Thus, symbolic approach researchers believe that messages, publicity, media relations, and media effects create an impression in the minds of publics (impression management), which can allow an organization to buffer itself from its environment (buffering function) (Coombs, 1998; Grunig, 2011; van den Bosch and van Riel, 1998).

Despite the prolific contributions of this approach in practice and research, scholars have recently pointed out the limitations of the symbolic approach, such as focusing on blame-avoidance strategies and assuming universal impact with multiple publics, limitations that could benefit from further development (Frandsen and Johansen, 2012; Olsson, 2014). Moreover, the mainstream theoretical efforts based on the symbolic approach (SCCT and image restoration theory) have not provided managerial strategies on how organizational management can communicate strategically with internal publics (employees) (Grunig, 2011; Taylor, 2012). As a result, the strategic management approach (managerial efforts) is needed for effective internal crisis communication that aims to emphasize understanding employees as a strategic public (Heide and Simonsson, 2014; Kim and Rhee, 2011). Therefore, scholars of the strategic management approach to crisis communication maintain the importance of reducing misalignment between management and employees in order to enhance voluntary and valuable ECBs for sensemaking and sensegiving in crisis situations (Frandsen and Johansen, 2016; Mazzei and Ravazzani, 2015).

The strategic management approach focuses on the role of communication more as dialog and interaction than as messaging (Kim and Ni, 2010). More specifically, the strategic management approach values the function of communication activities that are designed to build relationships with publics through interactive and proactive communication (two-way communication) while balancing efforts for distinctive interests (symmetrical communication management) (Grunig, 2011; Grunig and Repper, 1992). In turn, communication professionals can inform management decisions with valuable information collected from publics, as well as facilitate symmetrical communication between management and its corresponding publics, both before and after decisions are made (Kim and Krishna, 2017; van den Bosch and van Riel, 1998). Hence, strategic management can play a critical role in bridging the gaps between the management and publics for problem solving (bridging function) rather than creating message strategies to manage a crisis (Grunig, 2011; Kim and Kim, 2015; Kim and Krishna, 2017).

Scholars in the strategic management approach have demonstrated that strategic internal communication factors, including two-way symmetrical communication (TWC) and transparent communication (TRC), drive internal communication effectiveness (Grunig, 2009; Men and Stacks, 2014; Waters *et al.*, 2013). Their studies also indicate that such factors

in the context of internal communication can be antecedents that facilitate ECBs in crisis situations (Kim and Rhee, 2011; Mazzei *et al.*, 2012).

Two-way symmetrical communication. The symmetrical model in strategic management focuses on how individuals, organizations and publics use communication to adjust their ideas and behaviors, rather than trying to control or manipulate how the other party thinks or behaves (Kim and Ni, 2010; Men and Stacks, 2014). Following the symmetrical model, a two-way symmetrical system of communication makes organization more effective by building open, trusting and credible relationships with strategic employee constituencies (Grunig, 1992). Through TWC, an organization can promote mutual understanding, resolve conflict and establish respect with its employees by encouraging communication symmetry (Park *et al.*, 2014). In this sense, TWC is suggested as the most effective way to communicate with strategic internal publics (employees) (Kim and Ni, 2010).

TWC requires an organization to be willing to listen and respond to the concerns and interest of publics, and aims to build dialogues[6] and promote mutual understanding between an organization and its employees (Grunig, 1992; Men and Stacks, 2013). In the context of internal communication, TWC fosters a participative culture that provides employees with more opportunities for dialogue, discussion and discourse on issues (Grunig, 1992; Men and Stacks, 2014). Such a participative culture nurtures employee confidence, competence and development resulting in participative decision making and sharing of power (Aldoory and Toth, 2004). Thus, TWC allows employees access to participating in the decision-making process (Kim and Rhee, 2011; Park *et al.*, 2014).

TWC emphasizes “two-way information flow, understanding, responsiveness to employees’ needs and concerns, and tolerance to different voices” (Men and Stacks, 2013, p. 306). It is also supported by employee voice research, which demonstrates that the organizational context or culture has an important impact on employee voice behaviors, since employees are more likely to speak up when their organization’s communication reflects openness and when management seems willing to listen to them (Morrison, 2011).

In one-way or asymmetrical communication, employees hardly have the opportunity to provide input on organizational decision-making processes, because the structure or culture is more centralized, authoritarian and based on a top-down communication approach (Grunig, 1992; Men, 2014; Park *et al.*, 2014). In terms of management goals, asymmetrical communication focuses on persuading employees or controlling their behaviors through one-way communication (Grunig, 1992). In a crisis situation, it is plausible that the one-way asymmetrical communication can lead to a missing link between what crisis managers or communicators intend to communicate and what employees actually perceive, as employees’ needs and concerns are not communicated to management (Bordia *et al.*, 2006; Strandberg and Vigsø, 2016). Therefore, many scholars have emphasized the importance of TWC for excellent and strategic internal communication, demonstrating its effectiveness in nurturing positive employee attitudinal and behavioral outcomes for organizations (e.g. Grunig, 1992; Men, 2014; Men and Stacks, 2014).

Specifically, TWC enables employees to collaborate to increase their power and benefit of themselves in the organization (Grunig, 1992; Men and Stacks, 2014). Employees are more likely to engage in discretionary communication of ideas, suggestions, concerns, or opinions about work-related issues, with the intent of improving organizational or unit functioning (employee voice) when they believe that it is easier to do so and when they believe that their voice is likely to be heard (Detert and Trevino, 2010; Donovan *et al.*, 2016; Morrison, 2011). Such TWC is one of the key antecedents that leads to voluntary ECBs, particularly information-seeking and -forwarding for the organization (ECBs for sensemaking and

sensegiving in a crisis situation) (Jo and Shim, 2005; Kim and Rhee, 2011; Welch and Jackson, 2007). Consequently, the following hypothesis is proposed:

- H1. Employees' perceptions that their organization uses TWC with its employees will be positively associated with ECBs for sensemaking (a) and sensegiving (b) in a crisis situation.

Transparent communication. In the context of internal communication, transparency enhances employee trust and organizational credibility (Men, 2014), as well as employee engagement (Men and Stacks, 2014). In the same vein, scholars have recently applied the concept of transparency to internal communication processes and have proposed a new concept – transparent communication (TRC) – as an excellent characteristic of internal communication (Men, 2014; Men and Stacks, 2014). TRC is defined as “an organization’s communication to make available all legally releasable information to employees whether positive or negative in nature” (Men, 2014, p. 260). Furthermore, TRC should be implemented in a manner that is accurate, timely, balanced and unequivocal, with the aim of enhancing the reasoning ability of employees and holding organizations accountable for their actions, policies and practices (Heide and Simonsson, 2014; Men and Stacks, 2014).

The definition of TRC originated from concepts of transparency and transparent organizations (Men and Stacks, 2014; Rawlins, 2008). Balkin (1999) identified three types of transparency including informational, participatory and accountable. Drawing on these concepts, Rawlins (2009) defined transparency as having three important elements: “information that is truthful, substantial, and useful; participation of stakeholders in identifying the information they need; and objective, balanced reporting of an organization’s activities and policies that holds the organization accountable” (p. 74).

In the context of internal communication, transparent organizations make all legally releasable information available publicly to their employees – whether positive or negative in nature – in a manner that is accurate, timely, balanced and unequivocal (Heise, 1985). Transparent information (informational aspects) should meet substantial completeness concerning the needs of the receiver (employees) rather than the sender (Rawlins, 2008). To obtain substantial completeness, management should know what employees need to know (Men and Stacks, 2014). Therefore, employee participation (participatory aspect) is also an important part of transparency, because the need of employees cannot be met unless their organization knows what they want and need to know (Rawlins, 2009). In this regard, employees must be invited to participate in identifying the information they need in order to make accurate decisions (Rawlins, 2008). In addition, transparency requires accountability (accountable aspect) (Cotterrell, 1999). An organization needs to be accountable for its words, actions and decisions, as these factors are available for its employees to see and evaluate (Men and Stacks, 2014).

Thus, transparency is a process, as it involves not just making information available, but also actively participating in acquiring, distributing and creating knowledge (Cotterrell, 1999). In the internal context, an organization can be transparent when internal publics (employees) understand organizational decisions and believe the organization has told them the truth about its reasoning (Gower, 2006). To be transparent, organizations make their actions and decisions understandable to all interested internal publics (Men, 2014).

For this reason, the purpose of TRC is not merely to increase information flow, but also to enhance understanding (Balkin, 1999; Rawlins, 2009). Through TRC, employees can facilitate collaboration and cooperation because they trust each other and provide reciprocal support (Parks and Hulbert, 1995; Jahansoozi, 2006). In this regard, TRC can improve ECBs for sensemaking and sensegiving in crisis situations. As Cotterrell (1999) emphasized, transparency entails active participation in acquiring, distributing and creating knowledge – that is, sensemaking and sensegiving processes. In addition,

transparency helps an organization respond ethically to a crisis by taking into account the expectations employees have of the organization (Gower, 2006). Through TRC in crisis situations, employees can understand what happened and why, and what actions have been or will be taken. Therefore, the following hypothesis is proposed:

H2. Employees' perceptions that their organization uses TRC with its employees will be positively associated with ECBs for sensemaking (a) and sensegiving (b) in a crisis situation.

Previous business research indicates that employee demographic attributes may affect ECBs (Detert and Burris, 2007; Hsiung, 2012). This study posits the following research question to control for employee demographic factors:

RQ1. After controlling for employee demographic factors, will internal communication factors, employees' perceptions that their organization uses two-way symmetrical and TRC with its employees, remain positively associated with ECBs for sensemaking (a) and sensegiving (b) in a crisis situation?

Methods

A national survey was conducted for this study. To measure employee communication behaviors (ECBs) and internal communication factors in a valid manner, a realistic setting was needed that was based on uncontrolled environments from different organizations (Bennett *et al.*, 2011). A total of 16 scenarios were tailored to participants' industry sectors in order to help participants better understand the questions by giving them concrete information about ECBs for sensemaking and sensegiving in the crisis situations. A good script is an important strategy in survey research because the script can help respondents understand the questions exactly as worded (Fowler, 2009). All scenarios are provided in Appendix.

Sample and participants

The population for the study consisted of employees holding different positions in medium and large corporations in the USA. To recruit individual employees who work for a variety of medium and large corporations, an online survey firm was used. The firm, Qualtrics.com, maintains 1.8m panel members in the USA and has been frequently used for employment research, as researchers can request on-demand respondents based on their target demographics (Brandon *et al.*, 2013). For this study, Qualtrics recruited samples in accordance with the following criteria: full-time employees working in medium and large corporations with 300 or more employees in the USA; relatively representative panels based on the selection of the population being studied (i.e. quota sampling in accordance with different proportions of state populations and gender based on the USA Census); and workers in major industries according to the Bureau of Labor Statistics of the USA Department of Labor (www.bls.gov).

The total number of the sample was 510. The age of participants ranged from 19 to 65 years old, with an average age of 40.12 (SD = 0.51). The gender makeup of the sample was 50.2 percent ($n = 256$) male and 49.8 percent ($n = 254$) female. In terms of geographical region, 17.5 percent ($n = 89$) were from the Northeast, 22.9 percent ($n = 117$) were from the Midwest, 36.5 percent ($n = 186$) were from the South and (23.1 percent, $n = 118$) were from the West. The majority of participants (78.6 percent, $n = 401$) were white, while 7.6 percent ($n = 39$) were Asian or Asian American, 6.5 percent ($n = 33$) were African American, 6.3 percent ($n = 32$) were Hispanic/Latino and 1 percent ($n = 5$) were other races. With regard to level of education, 8.4 percent of respondents ($n = 43$) had a high school degree or less, 27.1 percent ($n = 138$) had a two-year associate's degree or less, 37.1 percent ($n = 189$) had a bachelor's degree or less than four-year university level and 27.4 percent ($n = 140$) had a post-graduate degree or less.

Procedure

The firm solicited participants with an online survey link that contained an informed consent form and a questionnaire from the web-based tool for building surveys (i.e. Qualtrics.com). The first-round pretest ($n=50$) was conducted to check for measurements and other issues. Using the participant panel provided by Qualtrics, the main test was then conducted among 544 full-time employees working in middle- and large-sized companies. Participants in the pretest and the main test were various employees and were paid four dollars and eight cents as compensation. After participants gave their informed consent, they answered a question about the industry sector in which they were working. The 16 categories of major industry sectors were based on the Bureau of Labor Statistics in the US Department of Labor (www.bls.gov) (see Table I for participants' industry sectors).

Respondents answered questions measuring transparent communication (TRC) and two-way symmetrical communication (TWC). After measuring the antecedents of communication behavior, brief crisis scenarios (with several sentences tailored to the different industries) were presented, to help participants better understand the questions by giving them concrete information about communication behaviors for sensemaking and sensegiving (the study's main independent variables). A freelance journalist was hired to create 16 hypothetical scenarios for the major sectors. The scenarios were based on actual crises, in order to increase ecological validity (Lyon and Cameron, 2004). The scenarios also indicated that the main cause could be attributed to their organizations (internal locus), to encourage participants to perceive a crisis involving their company[7] (Coombs and Holladay, 1996). Based on the industry indicated by participants at the beginning of the survey, they read one of the scenarios in accordance with their industry (see Appendix).

The participants then answered the same questions measuring communication behaviors for sensemaking and sensegiving. Other questions were then asked to measure demographic information, including age, education, income and race.

Measures

The question items were mostly adopted from previous research. All items used a seven-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7),

Industry sectors	<i>n</i>	%
Agriculture, forestry, fishing and hunting	16	3.1
Mining, quarrying, and oil and gas extraction	8	1.6
Construction	24	4.7
Manufacturing	66	12.9
Wholesale trade	12	2.4
Retail trade	48	9.4
Transportation and warehousing	25	4.9
Utilities	6	1.2
Information	43	8.4
Financial activities	34	6.7
Professional and business services	55	10.8
Educational services	51	10.0
Health care and social assistance	64	12.5
Leisure and hospitality	11	2.2
Other services (except public administration)	16	3.1
Public sector	31	6.1
Total	510	100

Table I.
Descriptive statistics
of participants'
industry sectors

or other labeling of response categories, such as “not true at all” to “true nearly all of the time,” “very unlikely” to “very likely,” and “not at all” to “very much.” The final items used for the measures are provided in Table II.

TWC was measured by seven items ($\alpha = 0.94$) (e.g. our company encourages differences of opinion) from scales designed by Dozier *et al.* (1995). To measure TRC, 18 items ($\alpha = 0.98$) (e.g. my company provides information in a timely fashion to people like me) were adopted from a measure that operationalized organization transparency (Rawlins, 2008) and was used in previous studies (e.g. Men and Stacks, 2014). Kim *et al.*'s (2010) communicative action in problem solving and Kim and Rhee's (2011) ECB measures were adopted to measure communication behavior (information seeking) for sensemaking (eight items, $\alpha = 0.93$) (e.g. I would voluntarily check people's feedback on the crisis), as well as communication behavior (information forwarding) for sensegiving (eight items, $\alpha = 0.91$) (e.g. I would write positive comments or advocate posting for my organization on the internet).

Results

After screening the data, 34 cases were deleted as outliers[8], and the final total was 510.

Dimensionality check: confirmatory factor analysis

To analyze for dimensionality, this study conducted confirmatory factor analysis (CFA) to analyze and select the best measurement items for each construct. Using AMOS 22, the current study ran CFA including each variable (latent variable) that has items underlying the single construct. In the CFA model, construct validity and composite reliability (CR) were successfully established in all measurement items in terms of Hair *et al.*'s (2010) golden rule for construct validity (standardized loading estimate (β) > 0.50, convergent validity: average variance extracted (AVE) > 0.50, discriminant validity: AVE > average shared squared variance (ASV)) and for composite reliability (CR) > 0.70). The final CFA model also achieved the acceptable model fit in terms of joint criteria from Hu and Bentler (1999) and Hair *et al.* (2010): χ^2 (739, $n = 510$) = 2,109.91, $p = 0.00$, $\chi^2/df = 2.86$, CFI = 0.94, TLI = 0.94, RMSEA = 0.06, SRMR = 0.04 (see Table II).

Hypothesis testing

For hypothesis and research question testing, ordinary least squares multiple regression analyses were conducted using STATA 13, to see the effects of each dependent variable on the dependent variable, controlling for other effects. Multicollinearity and heteroscedasticity were checked. The tests of VIF and tolerance tests showed that there was no violation of multicollinearity in all independent variables; that is, the independent variables met the criteria of VIF < 10 and tolerance > 0.10. The Breusch-Pagan/Cook-Weisberg test revealed that there was heteroscedasticity as fitted values of the dependent variables of communication behaviors for sensemaking, $\chi^2(1) = 6.44$, $p < 0.05$ (step 1); $\chi^2(1) = 6.90$, $p < 0.05$ (step 2) and for sensegiving, $\chi^2(1) = 24.14$, $p < 0.05$ (step 1); $\chi^2(1) = 23.10$, $p < 0.05$ (step 2) (see Table III). For this reason, the White heteroskedastic robust standard error (known as Huber-White estimators or sandwich estimators of variance) was run as a remedial measure. This study reports the results (changed standard errors and tests of statistical significance).

The two antecedents, or independent variables, in the model accounted for a significant portion of the variance in communication behavior for sensemaking (CBSM), $R^2 = 0.32$, $F(2, 507) = 85.42$, $p < 0.001$, and communication behavior for sensegiving (CBSG), $R^2 = 0.39$, $F(2, 507) = 104.01$, $p < 0.001$. As predicted in *H1* and *H2*, two-way symmetrical communication (TWC) and transparent communication (TRC) were each a significant positive predictor of communication behaviors for sensemaking and sensegiving when

Latent variables	Measurement items	β	R^2	CR	AVE	ASV	Effective internal crisis communication
Two-way symmetrical communication	TW1: I am comfortable talking to my manager about my performance	0.78	0.51	0.94	0.70	0.56	
	TW2: Most communication between management and other employees in our company can be said to be two-way communication	0.71	0.74				
	TW3: Our company encourages differences of opinion	0.86	0.82				
	TW4: The purpose of communication in our company is to help managers be responsive to the problems of employees	0.90	0.82				
	TW5: Supervisors encourage employees to express differences of opinion	0.91	0.76				
	TW6: Employees are usually informed about major changes in policy that affect our job before they take place	0.87	0.64				
	TW7: I am comfortable talking to my manager when things are going wrong	0.80	0.60				
Transparent communication	TR1: My company asks for feedback from people like me about the quality of its information (Participative)	0.88	0.78	0.98	0.73	0.55	
	TR2: My company involves people like me to help identify the information I need (Participative)	0.90	0.80				
	TR3: My company provides detailed information to people like me (Participative)	0.90	0.81				
	TR4: My company makes it easy to find the information people like me need (Participative)	0.89	0.79				
	TR5: My company asks the opinions of people like me before making decisions (Participative)	0.87	0.63				
	TR6: My company takes the time with people like me to understand who we are and what we need (Participative)	0.88	0.78				
	TR7: My company provides information in a timely fashion to people like me (Substantial)	0.89	0.79				
	TR8: My company provides information that is relevant to people like me (Substantial)	0.90	0.81				
	TR9: My company provides information that can be compared to previous performance (Substantial)	0.84	0.71				
	TR10: My company provides information that is complete (Substantial)	0.91	0.82				
	TR11: My company provides information that is easy for people like me to understand (Substantial)	0.85	0.72				
	TR12: My company provides accurate information to people like me (Substantial)	0.87	0.75				
	TR13: My company provides information that is reliable (Substantial)	0.84	0.71				
	TR14: My company presents more than one side of controversial issues (Accountable)	0.73	0.53				
	TR15: My company is forthcoming with information that might be damaging to the organization (Accountable)	0.74	0.54				
	TR16: My company is open to criticism by people like me (Accountable)	0.86	0.73				
	TR17: My company freely admits when it has made mistakes (Accountable)	0.84	0.71				
	TR18: My company provides information that can be compared to industry standards (Accountable)	0.81	0.66				
Employee communication behavior for sensemaking	SM1: I would meet and check with suppliers and government officials to collect new information	0.77	0.59	0.95	0.71	0.42	
	SM2: I would voluntarily meet and check with those people who have grievances with organization	0.81	0.66				

(continued)

Table II.
Composite reliability
and construct validity
of employee
communication
behaviors and their
antecedents

Latent variables	Measurement items	β	R^2	CR	AVE	ASV
	SM3: I would voluntarily check people's feedback on this issue or crisis	0.83	0.69			
	SM4: I would search for new information and subscribe to Listserv, newsletters, publications for organization	0.83	0.69			
	SM5: Even after working hours, I would contact stakeholders for their complaints and new information and share the information with colleagues	0.89	0.79			
	SM6: I would make extra effort to cultivate and maintain relationships with external stakeholders and strategic publics	0.87	0.76			
	SM7: I would meet people who work for similar businesses and check rumors and news about organization or business	0.88	0.77			
	SM8: I would start conversation or give information to relevant colleagues about new trends or unusual signals related to work	0.83	0.69			
Employee communication behavior for sensegiving	SG1: Employees are not afraid to speak up during meetings with supervisors and managers	0.58	0.34	0.91	0.56	0.54
	SG2: I would write positive comments or posts advocating for my organization on the internet	0.80	0.63			
	SG3: I would say good things to friends and neighbors about positive aspects of the management and company	0.85	0.72			
	SG4: I would recommend my organization and its service/products to people	0.79	0.62			
	SG5: I would attempt to persuade people who have negative opinions about my organization	0.79	0.63			
	SG6: I would refute prejudiced or stereotyped opinions about my organization	0.73	0.53			
	SG7: I would argue with those who criticized my organization and business	0.74	0.55			
	SG8: I would become upset and tend to speak up when encountering ignorant or biased opinions about my organization	0.70	0.49			

Notes: $n = 510$. β , standardized loading estimate; R^2 , explained variance; CR, composite reliability; AVE, average variance extracted; ASV, average shared variance. Construct validity (standardized loading estimate > 0.50 , convergent validity: AVE > 0.50 , discriminant validity: AVE $>$ ASV), and composite reliability (CR > 0.70) were successfully established in all measurement items (Hair *et al.*, 2010). Confirmatory factor analysis (CFA) model goodness-of-fit indices met all of the joint criteria by Hu and Bentler (1999) and Hair *et al.* (2010): $\chi^2(739, n = 510) = 2,109.91, p = 0.00, \chi^2/df = 2.86$, Comparative Fit Index (CFI) = 0.94, Tucker Lewis Index (TLI) = 0.94, Root Mean Square Error of Approximation (RMSEA) = 0.06 and Standardized Root Mean Residual (SRMR) = 0.04

Table II.

controlling for the effects of each factor. The results indicated that a one-unit change in TWC resulted in a 0.31 increase of CBSM ($b = 0.31, t = 2.75$) and a 0.31 increase of CBSG ($b = 0.31, t = 3.49$) in crisis situations, controlling for the effect of TRC. Likewise, a one-unit change in TRC results in a 0.26 increase of CBSM ($b = 0.26, t = 3.31$) and a 0.27 increase of CBSG ($b = 0.27, t = 3.00$) in crisis situations controlling for the TWC effect (see Step 1 in Table III). Figures 1 and 2 vividly demonstrate the results by showing linear predictions (linear fit lines) of TWC and TRC on each dependent variable, CMSB and CMCB.

This study also conducted a *post hoc* analysis to make sure that the results are same across different industries. A factor of industry was recoded as 15 dichotomous variables (agriculture: 1, others: 0; mining: 1, others: 0; construction: 1, others: 0; and so on)[9]. All independent variables, including TWC, TRC and the 16 industry variables were included in the regression models. The independent variables in the model accounted for a significant portion of the variance in CBSM, $R^2 = 0.34, F(17, 492) = 15.20, p < 0.001$ and in

Effective
internal crisis
communication

Variables	Communication behavior for sensemaking (CBSM)		Communication behavior for sensegiving (CBSG)	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
<i>Step 1</i>				
Constant	2.10	8.85***	2.10	9.44***
Two-way symmetrical communication	0.31	2.75**	0.31	3.49**
Transparent communication	0.26	3.31**	0.27	3.00**
R^2	0.32		0.39	
<i>F</i>	85.42***		104.01***	
<i>Step 2</i>				
Constant	1.77	5.15***	2.09	6.94***
Two-way symmetrical communication	0.27	2.90**	0.31	3.46**
Transparent communication	0.28	3.01**	0.27	2.95**
Age	0.00	6.72***	0.00	3.73***
Education	-0.02	-0.62	-0.03	-1.06
Gender (Male: 0, Female: 1)	0.03	0.27	0.02	0.28
Income	0.07	1.94	0.03	1.30
Race – Asian (Asian: 1, others: 0)	0.07	0.52	-0.33	-2.17*
Race – black (black: 1, others: 0)	0.39	1.65	-0.05	-0.24
Other race – other race (Other race: 1, others: 0) (e.g. Hispanic, Pacific Islander)	0.25	1.93	-0.08	-0.68
ΔR^2	0.01		0.01	
R^2	0.33		0.40	
<i>F</i>	29.38***		33.52***	

Notes: $n = 510$. Results were based on White's heteroskedastic robust standard errors because the Breusch-Pagan/Cook-Weisberg test revealed that there were heteroskedasticity (Step 1 - CBSM: $\chi^2(1) = 4.99$, $p = 0.03$, CBSG: $\chi^2(1) = 14.55$, $p = 0.00$, Step 2 - CBSM: $\chi^2(1) = 4.98$, $p = 0.03$, CBSG: $\chi^2(1) = 11.81$, $p = 0.00$). Independent variables were not in a violation of multicollinearity (i.e. VIF of each variable < 10 and Tolerance (T) of each variable > 0.10). * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table III.
OLS regression
analysis for the
association between
employee
communication
behaviors and their
antecedents

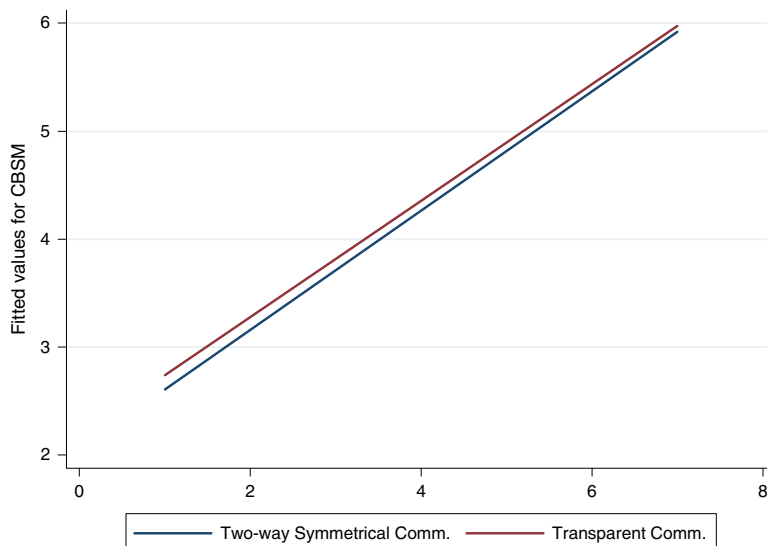


Figure 1.
Linear prediction lines
for the associations
between employee
communication
behavior for
sensemaking (CBSM)
and its antecedents,
two-way symmetrical
communication and
transparent
communication

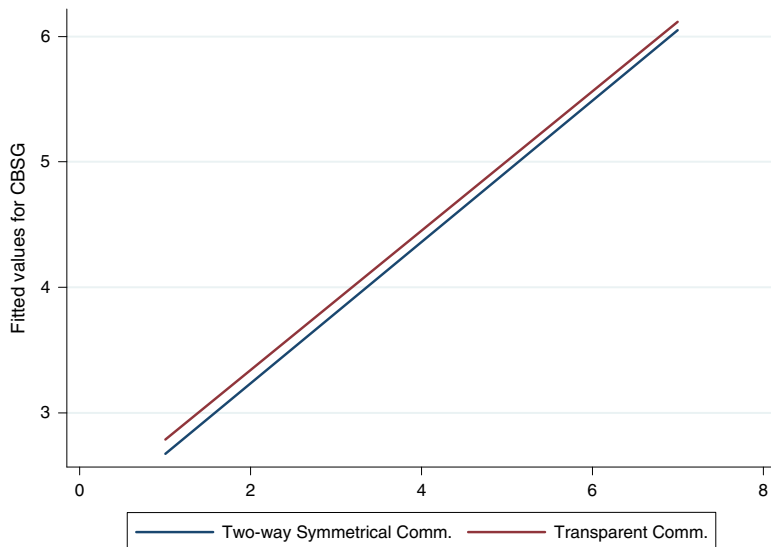


Figure 2. Linear prediction lines for the associations between employee communication behavior for sensegiving (CBSG) and its antecedents, two-way symmetrical communication and transparent communication

CBSG, $R^2 = 0.41$, $F(17, 492) = 20.40$, $p < 0.001$. To estimate how one industry has different effects compared to other industries on employee CBSM and CBSG, coefficients of all independent variable were applied to the multiple regression equation, $Y = a + b_1 \times X_1 + b_2 \times X_2 + \dots + b_p \times X_p$ (e.g. Predicted value of agricultural industry on CBSM ($\hat{Y}_{\text{Agriculture-CBSM}} = 2.18 + (0.24) \times \text{TWC} + (0.30) \times \text{TRC} \dots (0.27) \times (1: \text{Agricultural industry}) + (0.26) \times (0: \text{Mining}) \dots + (0.23) \times (0: \text{Public sector})$).

As a result, the predicted value of agricultural industry ($\hat{Y}_{\text{Agriculture-CBSM}}$) on CBSM was 2.45. The same procedure was applied to other industry variables, and the differences across industries were not statistically significant at $p = 0.05$: Mining ($\hat{Y}_{\text{Mining-CBSM}}$), 2.44; Construction ($\hat{Y}_{\text{Construction-CBSM}}$), 2.41; Wholesale trade ($\hat{Y}_{\text{Wholesale-CBSM}}$), 2.52; Retail trade ($\hat{Y}_{\text{Retail-CBSM}}$), 2.36; Transportation ($\hat{Y}_{\text{Transportation-CBSM}}$), 2.12; Utilities ($\hat{Y}_{\text{Utilities-CBSM}}$), 2.13; Information ($\hat{Y}_{\text{Information-CBSM}}$), 2.45; Financial activities ($\hat{Y}_{\text{Financial-CBSM}}$), 2.09; Professional and business services ($\hat{Y}_{\text{Professional-CBSM}}$), 2.13; Educational services ($\hat{Y}_{\text{Educational-CBSM}}$), 1.94; Health care and social assistance ($\hat{Y}_{\text{Health-CBSM}}$), 1.85; Leisure and hospitality ($\hat{Y}_{\text{Leisure-CBSM}}$), 1.90; Other services ($\hat{Y}_{\text{Other-CBSM}}$), 2.13; and Public sector ($\hat{Y}_{\text{Public-CBSM}}$), 2.41. The differences across the predicted values of different industries on CBSG were also not statistically significant at $p = 0.05$: $\hat{Y}_{\text{Agriculture-CBSG}}$, 2.33; $\hat{Y}_{\text{Mining-CBSG}}$, 2.32; $\hat{Y}_{\text{Construction-CBSG}}$, 2.10; $\hat{Y}_{\text{Wholesale-CBSG}}$, 1.91; $\hat{Y}_{\text{Retail-CBSG}}$, 2.16; $\hat{Y}_{\text{Transportation-CBSG}}$, 2.00; $\hat{Y}_{\text{Utilities-CBSG}}$, 2.06; $\hat{Y}_{\text{Information-CBSG}}$, 2.08; $\hat{Y}_{\text{Financial-CBSG}}$, 1.96; $\hat{Y}_{\text{Professional-CBSG}}$, 1.94; $\hat{Y}_{\text{Educational-CBSG}}$, 1.73; $\hat{Y}_{\text{Health-CBSG}}$, 2.00; $\hat{Y}_{\text{Leisure-CBSG}}$, 1.96; $\hat{Y}_{\text{Other-CBSG}}$, 1.97; and $\hat{Y}_{\text{Public-CBSG}}$, 1.97. Therefore, $H1$ and $H2$ were supported regardless of industry area.

To answer $RQ1$, all demographic factors – including age, gender, education, employment year, income and race variables – were added into the regression model. After controlling for demographic and socioeconomic factors that could affect communication behaviors for sensemaking and sensegiving, the results did not change (see step 2 in Table II). Before the demographic variables were added, nominal variables, including gender (female = 1, male = 0) and race (Asian, Black and Other), were recoded as dichotomous variables.

Independent variables (two antecedents and seven demographic factors) in the model accounted for a significant portion of the variance in CBSM, $R^2 = 0.33$, $F(9, 500) = 29.38$, and in CBSG, $R^2 = 0.40$, $F(9, 500) = 33.52$. There was a slight increase ($\Delta R^2 = 0.01$) in variance from

the previous models (see Step 1 in Table III). Controlling for the effects of other independent variables in the model, TWC was consistent as a significant predictor for CBSM ($b = 0.27$, $t = 2.90$) and for CBSG ($b = 0.31$, $t = 3.46$). Likewise, TRC was consistent as a significantly strong and positive antecedent for CBSM ($b = 0.28$, $t = 3.01$) and for CBSG ($b = 0.27$, $t = 2.05$), controlling for the effects of other independent variables. With regard to demographics, only age ($b = 0.00$, $t = 6.72$) was statistically significant in CBSM, controlling for other effects. In the CBSG model, age ($b = 0.00$, $t = 3.73$) and race (Asian) ($b = -0.33$, $t = -2.17$) were statistically significant factors when controlling for other effects (see Step 2 in Table III).

Discussion

The purpose of this study was to explore organizational effectiveness of internal crisis communication within the strategic management approach, whether it enhanced voluntary and positive employee communication behaviors (ECBs) for sensemaking and sensegiving. The multiple regression analysis revealed that strategic internal communication factors, including two-way symmetrical communication (TWC) and transparent communication (TRC), were positive and strong antecedents of ECBs for sensemaking and sensegiving in crisis situations, when controlling for other effects. The *post hoc* analysis confirmed these positive and strong associations across different industry areas.

First, the positive associations between TWC and ECBs demonstrate a fundamental rationale for understanding and communicating with employees as strategic internal publics in effective crisis communication. This finding can be added to previous research on effective internal crisis management that suggests sharing organizational goals and values with employees and encouraging employee participation in supporting crisis communication efforts, increasing organizational commitment after a crisis situation (Downing, 2004, 2007). By developing and practicing a two-way communication program between organizational management and employees prior to a crisis, this study indicates that crisis communication managers can expect employees' support through their voluntary and valuable communication behaviors for sensemaking and sensegiving, both internally and externally, during and after a crisis.

On the other hand, this study alerts crisis managers to negative consequences – including dissatisfaction with communication and cynicism from employees – caused by a lack of TWC (Mazzei and Ravazzani, 2011). In a crisis situation, listening is used to identify potential misunderstandings and unrecognized obstacles (Ulmer *et al.*, 2015). If TWC lacking between an organization and its employees, ECBs for valuable organization-related information will decrease. In turn, the organization may face further crisis, initiated by employees' misunderstanding of the original crisis, and may need additional resources and efforts to deal with the situation.

In a crisis situation, when an organization fails to listen to employee concerns and needs, employees fail to construct meaning as to what the organizational management intended, due to a lack of information in that situation. To fulfill their need for information, employees tend to rely more on informal communication in a crisis situation than formal communication instruments (e.g. official statements) in a crisis situation, as people tend to listen to and believe information that they receive from others in their own networks (Falkheimer and Heide, 2015). In turn, employees may create their own information based on speculations, aiming to reduce uncertainty in the crisis, and their boundary-spanning activities can lead to rumors about job-security, personnel changes and gossip during and after a crisis (Difonzo and Bordia, 2000; Downing, 2007). By keeping employees informed, inviting their feedback, and involving them in the decision-making process in a crisis, an organization can engage in TWC with its employees (practicing two-way communication systems) and, in turn, more easily recover from or adjust to a crisis by managing rumors well (Difonzo and Bordia, 2000).

In addition, this study demonstrates another important way to prioritize employees as strategic constituents for an organization: through TRC. The effect of TRC on ECBs for sensemaking and sensegiving were positively significant, when controlling for other effects. This finding confirms the positive effect of TRC in the internal communication context (Men and Stacks, 2014) and further extends it to crisis communication. This study suggests that TRC of crisis information with substantial completeness, employee participation and organizational accountability through words, actions and decisions in a crisis can heighten and amplify voluntary ECBs to actively seek out (sensemaking) valuable, positive, organization-related information, as well as disseminate it (sensegiving) to others.

More specifically, the finding implies that organizations should make and legally releasable information available publicly to employees in a manner that is accurate, timely, balanced and unequivocal (Men and Stacks, 2014; Rawlins, 2008, 2009). To put it another way, unbiased and/or complete crisis information can help employees enhance their communication behaviors for sensemaking and sensegiving. This finding can be empirical evidence for previous case studies that found that the ambiguity and uncertainty caused by biased and/or incomplete crisis information serves to obscure the sensemaking abilities of employees (Ulmer and Sellnow, 1997, 2000). Thus, the result confirms how TRC focused on substantially complete information prevents employee ambiguity and uncertainty, thereby leading employees to voluntarily seek and forward valuable and positive organization-related information, thus, enhancing sensemaking and sensegiving abilities of employees.

Conclusion

Implications

This study provides important implications for crisis communication professionals and researchers. The results shed light on how crisis communication managers can expect employees to become active communicators and corporate ambassadors through voluntary ECBs in organizational crises (Johansen *et al.*, 2012). This study suggests that voluntary and valuable ECBs can be enhanced by listening and responding to employee concerns and interests; encouraging employee participation in crisis communication; and organizational accountability through words, actions and decisions during the crisis. To do so, an organization should treat employees as valuable allies in working together to deal with crises (Morrison, 2011). It is advisable for an organization to ensure employee participation in two-way symmetrical and transparent communication by incorporating employee voices in determining what information is needed, how much information is needed and how well the organization is fulfilling the need for information, especially in crisis situations.

Furthermore, crisis managers should make sure that their organization holds itself accountable for their crisis response strategies (words, actions and decisions) and makes the strategies available for employees to view and evaluate (Men, 2011, 2014). When transparent crisis response strategies are used in an organization, employees are more likely not only to improve their competence to cope with a crisis, but also to engage in searching for crisis information and in influencing others during the crisis situations. With regard to an external dimension, a failure to use crisis response strategies to protect an organization's reputation often occurs when crisis managers are reluctant to be accountable and only do so at the last moment, when they have no other choice (Xu and Li, 2013). As such, employees are less likely to engage in voluntary communication behaviors for sensemaking and sensegiving when organizations use disavowed crisis response strategies and/or are reluctant or unwilling to take responsibility (Strandberg, and Vigsø, 2016).

As a theoretical implication, the results of this study indicate the need for crisis communication theories that are based on strategic management approach and that emphasize employees as valuable assets to an organization. Since scant theoretical

attention has been paid to employees in crisis communication research, these findings should be added into empirical evidence, reflecting the important ways to bridge the gaps between management and employees, as well as responding to calls from previous studies for more attention to internal crisis communication. In other words, the role and impact of employees should be taken into consideration when a new crisis communication theory is discussed. Through understanding ECBs for sensemaking and sensegiving in crisis situations, this study further expands the scope of theoretical efforts of previous strategic management research that chiefly focused on relationships and leadership.

Limitations and suggestions for future research

This study has several limitations. First, this study used hypothetical scenarios and relied on employees' self-report to measure TWC, TRC and communication behaviors. As a methodological limitation, furthermore, employees' self-report under unusual circumstances could impact a relatively large number of outliers ($n = 34$, 6.67 percent) in a given data set, compared with other studies based on multivariate data analysis. Employees' experience of similar crisis events, different types of communication climates, or social desirability motives for their communication behaviors could cause the outliers (Hair *et al.*, 2010; Osborne and Overbay, 2004). In future research, a more objective evaluation of these variables, and better control for method bias or other plausible variables (e.g. employee crisis history, communication climate and employee satisfaction) that might cause outliers or confound the findings, are needed to strengthen the validity of the results (Meneghel *et al.*, 2016). In addition, other crisis characteristics (e.g. uncertainty level, time pressure) that could determine channels and timing of two-way symmetrical and transparent communication should be considered in future research, as internal crisis communication channels (interpersonal communication) (Johansen *et al.*, 2012) and timing strategies (stealing thunder; self-disclosure strategy) (Claeys *et al.*, 2013) are important for effectiveness of crisis communication (Xu, 2018).

Furthermore, the findings in this study are limited in explaining crisis communication and management related to multicultural environments in organizations (Strandberg and Vigsø, 2016). Employees have become more diversified than ever before, due to the expansion of operations into the global arena, immigration flows and increased mobility of workers (Ravazzani, 2016). In future research, ECBs for sensemaking and sensegiving, and their antecedents, should be retested by considering the multicultural background of employees. Relatedly, this study did not consider different types of publics that emerge differently in crisis situations. With the use of situational theories, including situation theory of publics and situational theory of problem solving, different internal publics can be identified and segmented considering situational perception and cognition as active, aware, inactive and nonpublics in future research (Kim and Grunig, 2011).

At last, the findings may be limited in generalizability because the data for this study were collected based on nonprobability sampling, that is, purposive online sampling. To offset the sampling bias from the nonprobability sampling, quota sampling was used by the survey firm. However, there may have been bias resulting from the selection of respondents by the survey firm within the quota. In addition, this study relied on a cross-sectional and quantitative survey method. Future research is recommended to conduct qualitative research methods, such as in-depth interviews and focus groups, in a longitudinal way. Such an approach could provide more accurate causal relationship, as well as detailed information on different degrees of two-way symmetrical and transparent communication, sensemaking (e.g. retrospective enactment) and sensegiving processes, and actual communication behaviors, including how an organization communicates with employees and how employees communicate about the crisis (Stieglitz *et al.*, 2018; Weick, 1988).

Notes

1. Internal communication means “communication between the organization’s leaders and one of its key publics: the employees” (Mishra *et al.*, 2014, p. 185). In fact, as one of the most important strategic constituencies, employees are critical to organizations, as well as in the context of internal communication (Grunig and Hunt, 1984; Mishra *et al.*, 2014; Waters *et al.*, 2013).
2. Leifer and Delbecq (1978) defined employees as boundary spanners who “operate at the periphery or boundary of an organization, performing organizationally relevant tasks, relating the organization with elements outside of it” (pp. 40-41).
3. Weick (1969, 1979), an organizational theorist, considered organizations to be psychological creations of their members. For the organization, the environment can be thought of as a construction built from the flow of information into the organization (Duncan, 1972). “The organization cannot be responsive to the tidal wave of information potentially available to it. Rather, parts of the information flow from the environment are marked off and saved for further scrutiny, a process Weick (1969, 1979) called enactment” (White and Dozier, 1992, p. 92).
4. Sensemaking is conceptualized in a range of definitions, as there is no clear consensus on the concept of sensemaking (Maitlis and Christianson, 2014; Stieglitz *et al.*, 2018). This study takes Maitlis and Christianson (2014) integrative definition based on recurrent themes across definitions of sensemaking.
5. Grunig (2009) identifies two competing approaches that highlight buffering and bridging functions of public relations; the symbolic or interpretive approach (i.e., buffering function) and the strategic management or behavioral approach (i.e. bridging function) (Grunig, 2009; Van den Bosch and van Riel, 1998). Buffering refers to communication tactics used to create an impression in the minds of publics that allow the organization to buffer itself from its environment (i.e. messaging) (Grunig, 2009; Scott, 1987). Bridging is an adaptive organizational activity that seeks to narrow the gaps between positions of publics and management by incorporating publics’ voices in decision-making (Grunig, 2009; Van den Bosch and van Riel, 1998).
6. Dialogue is an ongoing communication process where the content and outcome are not controlled in the strictest managerial sense (Theunissen and Noordin, 2012). Philosophically, Buber (1958) explained dialogue in which communicators have the orientation of mutuality, viewing other parties as having a unity of being because dialogue involves an effort to recognize the value of the other. Similarly, Yang *et al.* (2015) identified the key factors of mutuality and openness for the quality of dialogue and dialogic communication in public relations research.
7. According to attribution theory (Weiner, 1972), locus (internal or external cause) is one of the important and common properties of causality. Applying attribution theory to situational crisis communication theory (SCCT), Coombs (2007, 2015) posits that internal locus leads publics to attribute a strong level of crisis responsibility (e.g. preventable crises: human-error accidents and organizational misdeeds), resulting in negative outcomes on an organization.
8. Univariate outliers (where cases have an extreme value on one variable), as well as multivariate outliers (where cases have a strange combination of scores on two or more variables) were checked. To detect univariate outliers, all cases in the main variables were transformed to standardized scores (i.e. z -scores), and z -scores in excess of 13.291 ($p < 0.001$, two-tailed test) were considered as outliers (Tabachnick and Fidell, 2013). There were 29 cases greater than 3.29 (e.g. 3.59 and -3.73) and all were deleted. Multivariate outliers were assessed by Mahalanobis D^2 measure, which “evaluates the position of each observation compared with the center of all observations on a set of variables” (Hair *et al.*, 2010, p. 69; Tabachnick and Fidell, 2013). Mahalanobis D^2 measure can be evaluated for each case using the χ^2 distribution (i.e. $p < 0.001$ for the χ^2 value) (Tabachnick and Fidell, 2013). Based on the Mahalanobis D^2 measure, five cases (e.g. subject number 95, 96, 186, 219 and 344) were detected as multivariate outliers and deleted.
9. To account for the K levels of a categorical independent variable, $K-1$ dummy variables are needed (Hair *et al.*, 2010). Hence, this study used the manufacturing industry category as a reference group because it is the largest one ($n = 66$). After recoding the categories, 15 dummy variables were included to estimate the regression models. The results in the model were used to estimate the difference in means across categories.

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Further reading

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Appendix. The 16 scenarios tailored to participants' industry sectors

- (1) Agriculture, forestry, fishing and hunting
Today, it is reported that a tractor overturn incident occurred in the small town. The exact extent of injury and property damage is under investigation. The cause is speculated by poor rolling system of the tractor produced by your company.
- (2) Mining, quarrying and oil and gas extraction crisis situation
Today, it is reported that an explosion just occurred in a small coalmining (or oil and gas extraction) town where your company is operated. The exact extent of injury and property damage is under investigation. The cause is speculated by poor mining (or oil and gas) safety conditions in your company.
- (3) Constructing
Today, it is reported that a mast climbing platform north of the mast collapsed at a condominium project under construction. The exact extent of injury and property damage is under investigation. The cause is speculated by poor construction safety conditions in your company.
- (4) Manufacturing
Today, it is reported that a laptop produced by your company suddenly exploded into flames at a public conference, in what could have been a deadly accident. The exact extent of injury and property damage is under investigation. The cause is speculated by your company's manufacturing defects.
- (5) Wholesale trade
Today, it is reported that a theft incident of goods occurred in your company. The exact extent of injury and property damage is under investigation. The cause is speculated by your company's poor security systems including malfunction of locks lights and alarms.
- (6) Retail trade
Today, it is reported that an oil and fuel in one of your company retail stores leaked onto the roadway. The exact extent of injury and property damage caused by the incident is under investigation. The cause is speculated by your company's (the store's) poor maintenance systems.
- (7) Transportation and warehousing
Today, it is reported that a train operated by your company derailed and caught fire in the valley town. The passengers were forced to be evacuated, and the exact extent of injury and property damage caused by the incident is under investigation. The cause is speculated by the train operator's in your company recklessness.
- (8) Utilities
Today, it is reported that an electrical-related house fire occurred. The exact extent of injury and property damage is under investigation. The cause is speculated by your company's household wiring system that could range from overloaded circuits.
- (9) Information
Today, it is reported that hackers' multiple cyber-attacks occurred in the wired and wireless telecommunications companies that operate the security software produced in your company. The exact extent of property damage, including loss of data and theft of system resources, is under investigation. The cause is speculated by your company's poor security system of information technology.
- (10) Financial activities
Today, it is reported that your bank company has lost computer data containing personal information, including social security number and account information. The exact amount of property damage, including loss of data and theft of system resources, is under investigation. The cause is speculated by the vulnerability of your company's banking program.

- (11) Professional and business services
Today, it is reported that a steel storage tank at the site of your company collapsed, breaching a concrete bund spilling a mixed waste onto the site. The exact extent of injury and property damage is under investigation. The cause is speculated by your company's poor maintenance management system.
- (12) Education services
Today, it is reported that a playground accident occurred in your school. The exact extent of injury and property damage is under investigation. The cause is speculated by your school's dangerous physical conditions, especially unsafe playground equipment by poor maintenance.
- (13) Health care and social assistance
Today, it is reported that a violent act-related incident occurred in your health care center. The exact extent of injury and property damage is under investigation. The cause is speculated by your school's neglect of workplace violence prevention for nurses.
- (14) Leisure and hospitality
Today, it is reported that a slip incident occurred in the swimming pool at your company hotel. The exact extent of injury and property damage is under investigation. The cause is speculated by your school's failure to supervise the pool.
- (15) Other services
Today, it is reported that a machinery accident related to rotary hydro-extractors in laundries occurred at one of your company branches. The exact extent of injury and property damage is under investigation. The cause is speculated by your company's inadequate interlocking arrangement.
- (16) Public sector
Today, it is reported that the victims who have applied for disaster assistance are frustrated by the approval process. The exact casual factor of the process is under investigation. The cause is speculated by the government's inappropriate process on a case by case basis.

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