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Rose G. Campbell

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## **A content analysis case study of media and public trust in Japan: After the quake**

Rose G. Campbell\*

\*Butler University, USA

### **Abstract**

On March 11, 2011, a magnitude 9.0 ( $M_w$ ) earthquake off the Pacific coast of Honshu, Japan, caused a devastating tsunami, killing thousands of people. The 2011 Great Eastern Japan Earthquake also created a partial meltdown at the Fukushima Daiichi Nuclear Power Plant, operated by TEPCO. TEPCO's and Japan's government response during this tragedy is the focus of this study. How institutions handle crises impacts public trust in institutions, which is a central theme. Using Situational Crisis Communication Theory (SCCT) as a framework, a content analysis of a U.S. national newspaper and a Japan-based English language newspaper was conducted covering a period of three months following the disaster. The primary objectives were to determine the nature of TEPCO's communication and the extent to which unethical crisis communication patterns were revealed in the news sources. Key findings included a) TEPCO maintaining the role of victim throughout the early stages of the crisis, thus accepting no responsibility for the radiation problems; and b) TEPCO minimizing the risk of radiation in the early weeks of the crisis, while it had more concrete data suggesting otherwise. Other findings including differences in content as a function of newspaper source and crisis stage are also reported.

Keywords: content analysis, Japan earthquake, crisis communication

### **The erosion of public trust and media's role**

Public trust is essential for a well-functioning society. Trust is a judgment that others can meet expectations and carry out their responsibilities ethically and with the best interests of affected parties: "Trust serves as a critical component of successful cooperation, collective mobilization, good governance, and rapid economic development" (Aldrich, 2017, p. 41). The erosion of public trust is a current trend among the most advanced and rapidly developing countries of the world. Of the 27 nations that comprise this category, on average trust indicators dropped from 51 percent to 25 percent between 2011 and 2012 ([Edelman Trust Barometer, 2012](#)). The four main institutions that are considered within the trust index are government, media, business and nongovernmental agencies. Few countries have experienced more upheaval in public trust than Japan, following the 2011 earthquake and subsequent disasters. Japan has scored low ever since (currently 37%), failing to recover significantly in the eight years post-disaster ([Edelman Trust Barometer, 2018](#)).

Public trust is tied to connectivity. Horizontal connectivity is comprised of local communities and institutions, as well as other personal ties. In contrast, vertical connectivity refers to broader institutional elements, including government, individual politicians, and other societal infrastructures. While generally horizontal trust correlates with vertical trust, survey research indicates that variance in levels of vertical trust is much larger than within horizontal trust (Eek & Rothstein, 2005). More significantly, during times when a public's vertical trust has been impacted due to major national events, extant research reveals that horizontal trust remains steady and sometimes those bonds are strengthened as a result (p. 5). While Japan has always been considered high in

cultural trust, that term relates more to horizontal connectivity. As a collectivist society, they share behaviors and social norms that embrace conformity, which support mutual trust. Major tragedies, such as the 2011 Great Eastern Japan Earthquake, can impact navigation between these two dimensions of connectivity. Aldrich (2017) argues that disasters serve to amplify existing rifts in trust, thereby increasing the chasm between vertical and horizontal networks.

### **Crisis background**

Media studies are effective diagnostic tools for examining the central causes for diminished public trust. Digital communication has both transformed the manner in which institutions respond to crises and shaped the public's expectations for crisis information. Most mainstream media, including those using a traditional print platform for news delivery, have an online presence and report breaking news and updates as they emerge. Public demand for immediacy and the media's ability to provide it, often lead to serious fact and judgment errors that can mislead people about safety and contribute to the erosion of public trust in institutions.

These problems are augmented in times of crises, especially those involving massive loss of lives. On March 11, 2011, a magnitude 9.0 ( $M_w$ ) earthquake hit off the Pacific coast of Honshu, Japan, causing a devastating tsunami, with waves as high as 40 meters. More commonly known as the 2011 Great Eastern Japan Earthquake, the event and resulting tsunami killed 15,895 people, injured several thousand more, and 2,539 are still listed as missing.<sup>1</sup> The earthquake also spurred several nuclear events at the Fukushima Daiichi Power Plant (operated by Tokyo Electric Power Company or TEPCO). The resulting radiation leak added to the earthquake tragedy and continues to be a concern today. For example, many countries initially banned fish imports from radiation-affected prefectures in Japan (The Japan Times, September 6, 2013) and South Korea continues to dispute Japan's food safety claim, in spite of the World Trade Organization's support of Japan's safety assurances.<sup>2</sup> Because the radiation leak was an outcome of the disaster, but was viewed as preventable, the public and media focused relentlessly on TEPCO's reactions, responses, and communications following the announcement of the partial meltdown.

Today, Japanese citizens have a greater voice in the energy debate. Locals must give their consent to any nuclear-related activities and citizens have demanded regular maintenance checks. While all plants were initially shutdown, some have gradually reopened. Before the Fukushima accident, 54 operating nuclear power plants accounted for 30 percent of Japan's energy needs, with plans to increase reliance on this source to 50 percent by 2030. After the accident, this plan was revised. As of 2018, Japan had 42 operable nuclear reactors, with eight reactors in five power plants in use (World Nuclear Association, February 2019).

TEPCO's and other authorities' communications surrounding that earthquake and resulting radiation leak are the focus for the present study. A tragic event with residual risk and no clear end in sight, the case offers a

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<sup>1</sup> National Police Agency of Japan (September 10, 2019). Victim report from the Great Eastern Japan Earthquake.

<sup>2</sup> Kyodo Wire Services (April 2013). South Korea appeals WTO ruling against import ban on Japanese seafood. (In The Japan Times.)

contemporary lens for viewing corporate or institutional crisis communication in action. It also serves to illuminate the behaviors and sources that contributed to diminished trust among vertical connections that remain today (Edelman Trust Barometer, 2018). After a crisis, organizations are under great scrutiny; every comment, press release, press conference comment, website blurb, and white paper issued can be studied to determine a chronology of planned and extemporaneous crisis response in a given context. Public stakeholders' perceptions of an organization's communication following a devastating crisis are powerful predictors of an organization's future success or failure (Fediuk, Coombs, & Botero, 2010; Penrose, 2000; Salgado, Ruão, & Machado, 2015). In the case of TEPCO, public trust was diminished as the organization took several missteps in attempts to minimize risks associated with the Fukushima nuclear power plant. Complications emerged related to government and other agencies' roles (e.g., the Nuclear and Industrial Safety Agency) in responding to the nuclear crisis, as well. In "Letting Radiation Leak, But Never Information," Arudou (2011) aptly describes flawed communication coming from multiple sources, including the mainstream media. He argues that the public, too, is at fault, as grassroots advocacy has never been the norm in Japan. The rise of citizens' use of social media worldwide during times of social unrest and for activism purposes has been well documented (e.g., Cardoso, Lapa & Fátima, 2016), but in Japan's case in 2011, institutional media were valued highly as reliable and credible sources (Pew Research Center, 2011). Nevertheless, contradictory information reported in mainstream media led to greater public scrutiny of TEPCO. Spurred by their uncertainty of nuclear power plants' safety, citizens' actions led to widespread efforts to shut down all of Japan's nuclear power plants initially.<sup>3</sup>

### **Effective crisis communication**

W. Timothy Coombs, a leading scholar on crisis communication, defines a crisis as "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes" (Coombs, 2007b, p. 2). Although no universally accepted definition of "crisis" exists, Coombs argues some commonalities are prevalent, including a degree of uncertainty in cause and outcomes.

Crisis management, on the other hand, is defined by Coombs as "a set of factors designed to combat crises and to lessen the actual damages inflicted," with the primary goal to minimize negative effects upon the organization and stakeholders (Coombs, 2010, p. 20). While this definition seems to elevate the organization as the entity that needs equal protection during and following a crisis involving health risk, the main goal of crisis management is to reduce risk and protect all stakeholders and elements from harm, whether they are the public or employees, or the environment. If managed well, then financial and reputational damage can be minimized, as well.

Crisis management has three stages, which include pre-crisis planning or "mitigation" (identifying possible risks and creating comprehensive plans to deal with each contingency), the crisis response (in progress), and post-

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<sup>3</sup> CNN Staff Report (September 16, 2013). Japan shuts down last nuclear reactor -- for now.

crisis communication (Coombs, 2010; Pearson and Clair, 1998). In a crisis, it's the latter two stages that are in the public eye and evaluated, but the comprehensiveness of pre-crisis planning determines the organization's (eventual) crisis communication effectiveness.

While some crises have distinct stages that are knowable and divisible, such as a weather disaster or a major accident in a factory, the crisis involving TEPCO and the Fukushima nuclear power plant is much more complex. In this case, the crisis was the direct result of a natural disaster, a major earthquake; but the crisis was ongoing, as radiation remained a threat to employees, the environment, and people in surrounding communities for weeks to come. The Exxon oil spill in Valdez, Alaska is another crisis example with similar complexity (see Johnson, Darrin & Sellnow, 1995). Additionally, because radiation risk assessment requires some knowledge of complex scientific information, public perceptions of TEPCO's responses would likely vary as a function of individuals' knowledge level. Any context involving risk uncertainty, combined with data complexity, will heighten laypeople's fears and subsequently shape their views of the communicator (Brashers, 2001). Additionally, people's perceptions of an organization's crisis communication may be complicated when foreign companies are involved and people from different nationalities and cultural backgrounds are affected (Link, 2012).

Uncertainty arises due to disagreements within the scientific community, such as the dispute involving the safety of nuclear power and the effects of radiation, and the different thresholds of exposure that are considered in both situations. These definitional struggles illustrate the profound problems with policy-making and are at the heart of current work on risk in social theory. "It is argued that the neglect of questions of agency which are central to definitional struggles has led to some theorists presenting risks as inevitable concomitants of technological and cultural developments leaving them in the grip of political quietism" (Miller, 1999). For example, government agencies involved with protecting consumers purportedly use sound scientific reasoning to support decisions. Without scientific agreement on nuclear power safety, or even whether radiation leaks can be prevented in the case of natural disasters such as an earthquake, organizations will face difficulty appearing credible in their communications.

The issue of scientific clarity was at play during the mad cow disease crisis in the U.S., because some public health researchers had raised concerns previously about the widespread impact should BSE become a threat to our food supply. The public was wary of government responses that minimized the potential threat (Campbell & Sato, 2010). But it is also true that *maintaining* or creating the state of uncertainty can be an effective communication stance. For those who fear imminent danger, socially constructing the state of uncertainty in regard to risk can be ameliorative (Sato & Campbell, 2014).

### **Situational Crisis Communication Theory**

Effective crisis communication must take into account all of these issues discussed above, including crisis context, stage, and complexity; as well as location, culture and uncertainty surrounding the event. To address these issues fully, several crisis communication models and theories apply. One of the most comprehensive frameworks that addresses these issues and reflects best practices in crisis communication is Coomb's (2007a)

Situational Crisis Communication Theory (SCCT). Informed by Attribution Theory (Coombs & Holladay, 1996), SCCT presents strategies that are both honest and essential to thwarting negative public reactions. SCCT acknowledges that stakeholders' attributions about an organization shape their subsequent reactions and responses. In a crisis, publics quickly assess and evaluate an organization's reactions and construct opinions about the type and nature of the communication. In particular, people tend to search for "causes of events (make attributions), especially those that are negative and unexpected" (Coombs, 2007a, p. 165). Anger and sympathy are the dominant emotions in response to crises, and these emotions combined with a need to attribute responsibility for the crisis drive people to action.

SCCT describes factors taken into consideration when assessing an organization's crisis response. Determining responsibility for a crisis is a primary aim of publics and these fall into three categories: corporation is a victim (low crisis responsibility/threat), corporation experiences an accident (minimal crisis responsibility/threat), and corporation intentionally caused the events that led to the crisis (strong crisis responsibility/threat). After responsibility is determined, people consider the organization's crisis history and reputation, which further shape their views of the organization.

SCCT identifies four main crisis response strategies typical of organizations: denial, diminishing, rebuilding, and reinforcing (Coombs 2007a). Denial is when an organization completely avoids taking any responsibility for a crisis. Within the "denial" category are three typical approaches: attack the accuser, outright denial, and scapegoating. An organization engaging in diminishing strategies acknowledges some degree of culpability but minimizes the seriousness of the event. This category includes two major approaches: justification and excuse-making. Rebuilding strategies include offering compensation to victims and/or apologizing for the crisis, expressing regret and ingratiation, expressing concern and compassion, with an aim to create positive public perceptions. Finally, reinforcing strategies use praise of others and reminders of past good deeds to bolster the public's confidence (Cooley & Cooley, 2011; Coombs, 2010). These four strategy types have been simplified to three terms, including deny, deal and diminish ("rebuilding" and "reinforcing" are considered as one category—"deal").

Because SCCT is a public-centered theory that focuses on ethics, the theory provides an elegant framework for assessing formal organizational communication during a crisis. It also allows researchers to draw conclusions regarding the ethics of crisis communication, by categorizing management responses into discreet strategy categories. Crisis management, as revealed in media portrayals, strongly correlates with a public's trust in institutions, impacting vertical connectivity levels (Eek and Rothstein, 2005).

### **Contemporary application: TEPCO and the 2011 Great Eastern Japan Earthquake**

The present study examines TEPCO's crisis communication as revealed in news content, applying SCCT's taxonomy. Specifically, a content analysis was conducted of media coverage regarding the events surrounding the aftermath of the earthquake and tsunami, and specifically regarding the Fukushima Daiichi nuclear power plant, operated and owned by TEPCO. Examining news portrayals is an effective way to assess how well an

organization handles a crisis. Because of the widespread criticism of TEPCO in regard to the Fukushima Daiichi nuclear power plant, of particular interest was whether specific unethical communications were employed that could be accounted for by SCCT.

News organizations represent just a fraction of what people are exposed to in a digital world that includes both mass communication and mass personal communication. Yet, we do know that many people turn to established news institutions as credible sources during crises. Media represent a key component of a society's vertical (trust) network, as well. In media-saturated environments, prominent news organizations still are regarded as highly reliable and accurate news sources during a crisis. According to the Agenda Setting Theory of the Press (McCombs, 2005), individuals often form perceptions of issues and topics based on news portrayals; they judge the relative value and significance of the information based on the degree of prominence afforded it by media organizations. This remains true in many societies today, especially in Japan, where general readership is among the highest in the world. This was true even in 2013, two years post-disaster. A report by a University of Tokyo scholar indicated that while newspaper advertising revenue declined, circulation remained high: "The chief reason is that for most Japanese adults over a certain age, newspapers (are) not merely an information medium but an integral part of their lifestyle. If you are an adult in Japan, chances are that one of the first things you do after getting up in the morning is to go to your mailbox and collect your morning paper."<sup>4</sup> Additionally, Japan is home to the largest circulated newspaper in the world, The Yomiuri Shimbun.<sup>5</sup> ([World Atlas, 2019](#)).

While content analysis methodology alone cannot test Agenda Setting effects and reveal the impact of news content on people's attitudes and behaviors, extant research does show that media consumers frame issues based on the angle taken by their dominant news source. Japan's established reliance on institutional news media at the time of the 2011 disaster is an indicator that mainstream news media played a prominent role in citizens' information-seeking behavior. Thus, a study of news content surrounding this crisis will provide some insight regarding how the public likely views an organization like TEPCO at the center of the controversy.

### **Research questions regarding TEPCO's crisis response, as portrayed in the selected newspapers:**

- R1: What was the nature of media coverage (number of articles, length, prominence)?
- R2: What types of sources were cited or quoted in articles?
- R3: What were the primary topics addressed?
- R4: What level of health risk did TEPCO communicate to the public regarding its damaged power plant and did it differ as a function of a) newspaper source and b) crisis response timeline?
- R5: To what degree did TEPCO engage in unethical crisis communication responses (SCCT's deny, deal and diminish) and were any strategies used more often than others?
- R6: Were there significant differences in coverage as a function of the news source?

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<sup>4</sup> [Kaori, H. \(2013\).](#) Japan's newspaper industry: The calm before the storm. Nippon.com.

<sup>5</sup> [World Atlas.](#) Newspapers with the highest circulation in the world. (Retrieved December, 2019)

## Method

### *Content analysis*

To answer the proposed research questions, a content analysis was performed. A content analysis is a systematic, valid, and reliable method used to evaluate specific media content (Krippendorff, 2004). For this study, a content analysis was conducted on two newspapers to evaluate TEPCO's response to the 2011 Great Eastern Japan Earthquake, as well as to compare disparities in media coverage among the two newspapers.

### *Sample Inclusion Rules and Unit of Analysis*

Because of the impact of the earthquake, and the worldwide attention afforded it rightfully, two newspapers were selected for the study: One U.S. national newspaper as well as one Japan-based English language newspaper. *The New York Times* was selected for this study as it is the third largest circulated newspaper and the largest paid subscriber newspaper in the United States. *The New York Times* is considered more moderate to liberal leaning in its editorial content, compared to other national U.S. newspapers such as *The Washington Post* and *USA Today*, but it was selected because of its large paid circulation and potential for impact on readers' views. While over half of its readers are foreigners, *The Japan Times* is read nearly equally by Japanese citizens and international publics on some publication days, especially Mondays, and nearly 30 percent have it delivered to their homes.<sup>6</sup>

Both a U.S.-based national newspaper and a Japan-based newspaper were selected because the concerns of their audiences in regard to the earthquake will obviously differ. While it may be useful to compare the U.S. coverage with another major Japanese-language newspaper, *The Japan Times* was selected because of its broad reach and historical significance. Founded over a century ago by a Japanese journalist whose intent was to engage Japanese citizens with international news written in English, today the paper provides critical news for all Japanese citizens as well as the English-language expat community. Eight years after the disaster, articles still are being published in *The Japan Times* about the Fukushima Daiichi plant. Articles from these two newspapers fitting the criteria (see article inclusion rules below) published over the course of three months comprised the unit of analysis. This represents the time frame of the earthquake and emergence of the radiation leak crisis at TEPCO's nuclear power plant.

Using LexisNexis databases, a census sample of articles from these two newspapers was extracted, using the time parameters of March 11, 2011 through June 11, 2011. These dates represent the early stages of the crisis. All articles in this time frame that mentioned the Fukushima Daiichi plant in some form (and TEPCO or Tokyo Electric + [earthquake or tsunami or radiation]) were selected initially. In order to obtain the final sample, relevance was determined, with all irrelevant or repeated articles excluded. Irrelevant articles included those

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<sup>6</sup> [The Japan Times, Media Information](#), 2017.



repeated from wire services, briefs with short synopses of various aspects related to TEPCO, repeated articles with a correction not affecting the content of interest to the study, as well as those with content unrelated to the present study's focus. For example, an article about someone placing flowers in front of the Fukushima plant would not be included in the study, even though the company name, TEPCO, was in the article and it mentioned the radiation leak, because it did not address the study topic. It simply reported what a citizen did. Articles about the stock prices of TEPCO or potential government bail-outs of TEPCO were not included if they did not also address the particular risk (environment, humans, or animals) situation relevant to the nuclear power plant and only described financial reports. Historical articles about TEPCO's or other utilities' handling of previous problems at nuclear power sites also were not included if they did not address the current situation beyond simply mentioning the event.

#### *Coding instrument and definitions of variables*

A coding instrument was developed for conducting the content analysis. Manifest content such as news source (newspaper type), story length (word count), publication date (month, day) and TEPCO source type were included. Sources cited or quoted within the article were categorized and counted because they are integral to prominence and establishment of credibility. Because the study is focused on TEPCO's crisis response, sources of significant interest for the present analysis included TEPCO internal sources who were cited or quoted. Categories for this variable included: TEPCO spokesperson/public relations professional, TEPCO company official/executive, TEPCO employee at laborer level, TEPCO expert (engineer), and other employee. We also assessed how often Japanese politicians, outside nuclear power experts, regulatory agency representatives, advocacy groups, and international politicians, private citizens, and others were cited or quoted.

A list of definitions was developed to operationalize the key categories (latent content) assessed by coders. First, primary topics were identified by looking at the headline and the first two paragraphs of an article. The primary topic would be prominently mentioned in these two areas while the secondary topics would be mentioned in other areas but less analysis and space were devoted to them. Because this study's focus is on corporate crisis communication, this analysis considered whether the nuclear power plant crisis was a primary topic of the article or if the nuclear crisis was discussed as a sub-topic of other earthquake or tsunami-related content. "Topics addressed" was created as a variable in order to determine the scope of information being covered by the newspapers in regard to the 2011 Great Eastern Japan Earthquake and TEPCO's response. Categories for this variable included: impact on land, water, and/or plant life; impact on humans and/or animal life; clean-up processes or attempts to stop or contain the radiation leak; government comment, government action/policies; human interest; economic impact on tourism and Japanese businesses; economic impact on stock and profits; economic impact on other national/international businesses or industries; comment made by TEPCO; reported action by TEPCO regarding radiation containment; criticism of TEPCO's crisis management response; and "other" (some categories are derived from Villines, 2011).

Level of risk reported by TEPCO and others was coded to determine changes or contradictions in information: no risk discussed, assessment of no risk present, uncertain risk, minimal or minimized risk, moderate risk, high

risk, and Chernobyl level (the highest on a radiation risk scale is 7, the rating given to Ukraine's Chernobyl incident). Sometimes the scale number was reported and other times simply the type of risk (word descriptor) was given.

The final seven coding categories were based on types of possible unethical responses, as iterated by SCCT. Categories of "denial of responsibility" include attack the accuser, outright denial, and scapegoating (or combinations of these); categories for "diminishes responsibility" include justification and excuse-making; categories of "deal" were assessed in the two original categories of "rebuilding" (offering compensation and/or apologizing, expressing regret and ingratiating, expressing concern and compassion, and combinations of these three) and "reinforcing" (praising others, reminding of their past good deeds, and both of these). The definitions are derived from Cooley and Cooley (2011) and Coombs (2010), see Appendix. Three remaining coding categories addressed TEPCO's level of acceptance of responsibility for the radiation leak and problems at the plant: "victim" (TEPCO is a victim of the crisis itself—least amount of responsibility), "accident" (cause of problem is due to an accident—limited responsibility), and full responsibility (TEPCO is responsible for the crisis).

#### *Coder selection and training*

In addition to the primary coder who coded all articles, a second coder was employed to code 20 percent of the total sample. The second coder's results were then compared to those of the primary coder in order to determine inter-rater reliability.

The second coder was trained by the primary coder to carry out the content analysis on as many as 20 news articles not included in the present study, using the same coding instrument described above. Training the coder involved discussing the code sheet and definitions and then both coding 20 articles until reaching 100 percent agreement on at least four articles in a row. This was accomplished in three hours after coding 12 articles.

The sample articles chosen for the second coder were selected using a random numbers chart, in which all articles were assigned a number and then 20 percent were randomly selected by correlating the article number with the random numbers chart. Cohen's Kappa, which establishes inter-coder reliability while accounting for agreement that may occur by chance, was calculated for all latent variables assessed. For all but one variable tested, the scores ranged from .78 to 1.0, reflecting excellent ranges for inter-rater reliability. The variable that had less reliability was "diminishes" (.63), as "justification" and "excuse-making" categories were not consistently coded the same way and appeared not to be considered discrete categories by one coder.

## **Results**

### *News prominence*

A total of 133 articles comprised the valid sample, with 84 from *The New York Times* (NYT) and 49 from *The Japan Times* (JT). As expected, almost half of the articles were published in the first three weeks, March 11-31

(63, 47.4%). In April, 37 (27.8%) relevant articles were published and in May and June there were 28 (21.1%) and 5 (3.7%), respectively. With a range of 133 to 2,530 words, the average article length was 1008.08 ( $sd = 493.78$ ). Close to half (43%) of the articles appeared on the front page of the two newspapers, but all were published in the front sections.

### *Sources of information*

The most frequently cited or consulted sources were government officials (63, 47.4%) and nuclear regulatory agency personnel (56, 42.1%). Few articles reported private Japanese citizens' reactions (8, 6%), but primarily this was due to the sample selection procedures. The primary or secondary topic had to be about the nuclear power plant and TEPCO (or the utility company name in some form) had to be mentioned to be included, which excluded a lot of articles from the sample. TEPCO personnel were quoted or cited in 81 articles (60.9%). To be counted as a source, TEPCO couldn't simply be mentioned; the article had to cite or quote (attribute) information from an official/manager, laborer/worker, executive, or spokesperson. All comments or information attributed to the organization with no explanation (e.g., "TEPCO said..." or "a statement released by TEPCO...") were attributed to spokespeople/public relations personnel, unless "officials," "executives," or "engineers" (experts) specifically were mentioned.

Of the 81 articles that cited or quoted information from a TEPCO representative of some type, the majority of articles identified the source as a public relations spokesperson or simply "TEPCO" with no specific position mentioned (43, 53%). The next most frequent TEPCO source cited was a top executive, either the president or top manager (18, 22%). TEPCO's president was criticized for disappearing from the public eye for a week following the crisis; eventually we learned he was hospitalized with heart problems following the natural disaster. More articles would have quoted him had he been in the limelight from the beginning.

Significant differences in sources cited or quoted occurred as a function of newspaper source ( $\chi^2 = 14.94$ ,  $df = 5$ ,  $p < .01$ ). For example, NYT cited TEPCO expert sources (e.g., engineers) in 7 (8%) articles (0% of JT) and attributed more than one TEPCO source in 11 (13%) articles (0% in JT). They cited public relations professionals or spokespeople with the exact same frequency (32%) in both newspapers.

### *Topics*

The Fukushima Daiichi plant radiation crisis was the primary topic in 127 of the 133 articles (95.5%) and a secondary topic in 6 (4.5%) articles. Again, sample inclusion rules required the nuclear power plant to be primary or secondary. Other topics mentioned with greater frequency were containment/clean-up attempts at plant (113, 88.7%), government action or policies (47, 28.6%), impact on stocks and profits (12, 9%), and plant worker injury (8 articles, 6%). Many other articles published during this time frame dealt with these topics as primary or secondary, so their minimal presence in articles dealing with TEPCO do not suggest the newspapers did not cover these topics. For example, many more articles not included in the sample described radiation effects on agriculture, exports, and fish, but because they did not have any discussion of the plant or TEPCO's

efforts to contain the radiation, they were not included in the sample. The radiation and the plant was background factual information only.

### *Risk level*

The level of human risk due to radiation exposure was of critical importance to the public and thus was mentioned in 85 percent (113) of all articles. TEPCO's changing risk analysis was a point of scrutiny and criticism later, so it became a key variable in this study. The public needed reliable and factual information to make decisions about evacuation, food sources, water, and other prevention and life-sustaining issues. In many of the articles, TEPCO officials were quoted as describing the risk level as "uncertain" (56, 42.1%). The next most frequent category was "minimal or minimizing," which is designed to reassure the public and thwart panic (24, 18.0%). High risk (scale level 5 or 6) was indicated by TEPCO in 11 articles (8.3%) and "highest risk" (scale level 7, Chernobyl) was indicated in 12 articles (9%). Fewer articles listed "moderate risk" or they did not address risk levels at all.

Significant differences existed in the risk determination as a function of the newspaper source and crisis timeline. For illustration, *The Japan Times* reported a high risk or highest risk in 20.4 percent of its news articles (10 of 49) and *The New York Times* reported these two levels in 15.5 percent (13 of 84), but there were significant differences across categories:  $\chi^2 = 25.41$  ( $df = 6$ ,  $p < .001$ ). For crisis timeline, the month of the publication (March, April, May or June) was considered in relation to risk level. During the first three weeks of the crisis following the earthquake and tsunami (March 11-31), the most frequently identified risk levels stated by TEPCO personnel were "uncertain" (35, 26% of articles) and minimal/minimizing (16, 12%), with TEPCO stating more alarming risk levels in mid-April and May:  $\chi^2 = 52.93$  ( $df = 18$ ,  $p < .001$ ).

### *Ethical conduct*

This issue is a central focus of the crisis communication analysis and three variables addressed how TEPCO positioned itself in relationship to the nuclear event at its plant. We evaluated TEPCO officials' responses to determine the degree of corporate responsibility admitted and how they portrayed the utility company's involvement. TEPCO admitted being responsible for the plant's inability to withstand the earthquake and tsunami in only 7 (5.3%) of the articles. TEPCO's primary positions regarding culpability was that of a "victim" of the disaster (38 articles, 28.6%), which is the lowest level of responsibility; or that of responder to an "accident" (36, 27.1%).

No significant newspaper source differences were identified in regard to degree of culpability assumed by TEPCO. An analysis of crisis timeline, however, did reveal one significant difference in responsibility position. TEPCO claiming to be a victim with the least amount of responsibility was the dominant position given in the first two months of the crisis, but TEPCO distanced itself from this viewpoint in May and June ( $\chi^2 = 8.63$ ,  $df = 3$ ,  $p < .05$ ). There were no significant newspaper source differences in level of responsibility for the other two categories.

SCCT categories of crisis communication also were assessed. Of these, the most common response attributed to TEPCO personnel was denial (43, 32.3%), and specifically, "outright denial" (40, 30.1%). Included in this definition was "providing conflicting information," as that indicated denial of the situation and its responsibility for managing the information. "Diminish" responsibility was the next most frequent unethical approach, with 37 (27.8%) articles containing TEPCO comments that reflected such strategies. Of these, 23 (17.3) reflected "making excuses" and 14 (10.5%) represented "justification" of questionable actions or both excuses and justification. (Note that this variable had the lowest score on the inter-rater reliability test of all variables tested because of the lack of distinction between "justification" and "excuses" categories, but the overall score of the category, rather than the individual diminish strategies, are very reliable.) "Rebuild" strategies were rarely expressed by TEPCO officials, with only 8 articles (6%) reporting that TEPCO apologized for the damage its actions caused. Within the category, only one time was a TEPCO official quoted as expressing compassion and concern for the affected publics, and that was the spokesperson for TEPCO. It may be that apologies and compassion were expressed in other articles, but the comments did not make it into the sample articles in which TEPCO was a primary or secondary topic. Reporting guidelines may have played a role, as well. The final category of SCCT was "reinforce," which includes praising others (5 articles, 3.8%) and reminding of past good deeds (2, 1.5%).

No significant crisis timeline differences were revealed in the analysis of the deny, diminish, rebuild, and reinforce responses. Only one significant difference was found in newspaper sources among these categories: Reinforce strategies (praising others, reminding of past good deeds) were described in 7 (8%) NYT articles and in no JT articles ( $\chi^2 = 4.31, df = 1, p < .05$ ).

## Discussion

This study examined TEPCO's crisis communication following the 2011 Great Eastern Japan Earthquake and tsunami, which damaged the Fukushima Daiichi Power Plant operated by Tokyo Electric Power Company. In hindsight, we know that years before the 2011 disaster that TEPCO was aware that Fukushima Daiichi plant was ill prepared for such a disaster and had failed to build new safety structures that would have likely prevented the partial meltdown and deadly radiation leak:

"The utility's reactors have suffered numerous troubles. In 2002, the government revealed that TEPCO had falsified reports on government inspections and concealing safety incidents at its nuclear power plants for more than two decades. While TEPCO initially admitted to 29 falsifications, including cover-ups of cracks in reactor core shrouds in all three of its power plants, it later admitted to 200 cases involving the submission of false technical data. The scandal led to the resignations of TEPCO's president, vice president, chairman and two other executives. In 2007, TEPCO announced that an internal investigation revealed there were even more unreported incidents, including a 1978 case where an operation error led to five control rods at reactor 3 in

the Fukushima No. 1 plant to slip down, allowing the core to initiate a self-sustaining nuclear reaction.”<sup>7</sup>

The present study revealed that for weeks after the earthquake and tsunami, TEPCO maintained that it was a victim of an unfathomable disaster, that no level of preparation could have prevented the breakdown of the facility. In spite of knowing about the serious damage at the nuclear power plant, TEPCO officials initially framed the radiation risk as either uncertain or minimal, in spite of independent reports to the contrary. Further, when TEPCO was called to question for several missteps that likely led to the partial meltdown (e.g., operators delayed the flow of seawater needed to cool the reactors), officials gave conflicting reports of what happened, obfuscating facts.

As mentioned, news reports eventually made it clear that TEPCO was at fault and had dangerously misled the public, and did so in concert with public officials and government regulatory boards. In the first crucial weeks of the crisis, however, the news coverage indicates that TEPCO chose to protect its financial assets and reputation rather than provide honest information in the public's best interests.

Until news investigative reports proved otherwise, TEPCO officials most frequently portrayed itself as a victim of the natural disaster, arguing that they could not have predicted the damage that stemmed from the earthquake and sea wall. Claiming “victimhood” represents the lowest level of responsibility possible. The most common public statements regarding personal responsibility for the accident reflected SCCT's “denial” category. The news articles revealed that TEPCO officials outright denied culpability or gave conflicting reports of the state of the facility as well as their actions and efforts to solve the problem and prevent further harm. Additionally, the most frequently cited TEPCO source in the JT was, well, no source (25, 51%). This means that officials and executives of TEPCO were unavailable for comment on over half of the news stories, particularly in the critical early days of the crisis. As mentioned earlier, the president of the company disappeared completely for a week following the accident, and later it was revealed he was hospitalized with heart problems. This information was not widely reported to the press, however, until much later. Not having a top executive on hand following this major catastrophe only led to more speculation by the news media regarding TEPCO. The second most frequently cited source was a public relations professional or spokesperson (32%), which illustrates the lack of importance TEPCO ascribed to news media and public reporting.

The Japan-based and U.S.-based newspapers were compared to determine if their crisis reporting differed. The study found significant differences in types of sources cited, with the NYT attributing comments to experts and company executives at a higher rate than its Japanese newspaper counterpart. Additionally, the NYT more often cited a variety of sources in a single article more frequently than did the JT. This can be accounted for by the differences in news practices, with U.S. journalists generally striving for multiple sources to balance a story and give more depth to the reporting. In Japan, the best source considered is enough in some cases. The JT also

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<sup>7</sup> Martin, A. (May 17, 2011). When it comes to mighty TEPCO, pride goes before the fall. [The Japan Times](#).

discussed risk levels significantly more frequently than did the NYT and also repeated the news of the “highest level risk” in more articles than did the NYT, once TEPCO admitted to the Chernobyl-level conditions. This is logical, because the Japan-based newspaper naturally reports news most critical to the well-being of its readers, those who are in Japan.

The timeline of the crisis also accounted for some significant differences in content. In particular, TEPCO more frequently played the “victim” card during the first 6 weeks of the disaster compared to the next 6 weeks. Additionally, the crisis timeline predicted the level of risk, with “uncertainty” and “minimal/minimizing” risk being the most frequently cited risk levels by TEPCO in the first few weeks of the crisis, compared to the end of the three-month period studied.

## **Conclusion**

These findings are reflective of TEPCO’s public response to an unprecedented crisis. The content analysis revealed that the SCCT model is an effective approach for analyzing organizations’ crisis communication and particularly for identifying unethical practices. It also showed that a domestic newspaper’s focus (JT) is on the public’s self-interest, in this case risk levels, whereas the international paper (in this case, the NYT) is fixated on depth of analysis (e.g., multiple sources and more subtopics of impact). TEPCO’s choice to make public relations professionals (or no source) as the face of the company to news media, rather than its top executives or experts, was alarming, especially given this catastrophic event. It may illustrate the company’s unwillingness to place its leaders and experts in the public eye, or a lack of understanding regarding the critical role of leadership in crises. While mainstream newspapers are considered highly credible sources among Japanese citizens, especially in 2011, these results should be taken with caution. First, they reflect the content of just two newspapers, although they are prominent and respected sources. Second, only English-language newspapers were analyzed. Although The Japan Times has the largest circulation among Japanese citizens compared to other Japan-based English-language newspapers, the study would be more comprehensive and perhaps reveal different findings if a Japanese language newspaper source was also included. Third, blogs and other online and user-generated content, as well as public documents from TEPCO (website, white papers, press releases) would provide another rich landscape of content to study TEPCO’s crisis response.

This study also provides practical and theoretical contributions to the crisis communication literature. At the practical level, SCCT with its ethics-centered approach is an effective framework for creating representative cases depicting how organizations handle crises. Extant crisis communication studies, however, typically examine communication with stakeholders of a single entity (such as a corporation), those who are particularly affected by an event. From a theoretical perspective, crisis cases collectively may help illuminate underlying reasons for societal shifts in public trust, beyond those directly impacted by an institution’s actions. Studies should extend across multiple agencies involved, beyond the crisis epicenter. For example, TEPCO is a complex business operation and as a utility it is regulated by government. TEPCO was not the only active player in the crisis. While findings from one report cannot link directly to trend data (e.g., the Edelman Trust Barometer), crisis studies

examining diverse institutions (government agencies, politicians, and major infrastructures) may reveal patterns and trends in conduct that cumulatively serve to erode public trust. When multiple societal structural components are viewed as deceptive or lacking transparency, vertical connectivity breakdowns are significant (Eek & Rothstein, 2005).

This study indicates that in spite of the wealth of knowledge accumulated about best practices in crisis communication, sometimes major corporations fail to do their jobs well. In spite of the enormity of this tragedy, TEPCO had every opportunity to respond to the crisis effectively by communicating immediately and through the right sources, by taking responsibility to solve the problem, by being honest and transparent during the process, and by putting the public's well-being at the forefront. What emerged instead appears to be a haphazard reactive response that ultimately created negative views of TEPCO and government officials, as well as the news media that reported their reactions and responses.

It is essential to note an important proviso. Because of the widespread devastation caused by the earthquake and tsunami, it is likely that everyone involved in TEPCO from top executives to the laborers, suffered great loss personally. All of them were operating under extreme duress. Nevertheless, even in tragic times, organizational leaders must step forward and put the public's safety first, rather than their bottom line.

This content analysis of media coverage of TEPCO's crisis communication also serves as a case example to illustrate the contributing role media may have played in shaping Japanese citizens' assessment of trust and well-being today (*Edelman Trust Barometer*, 2018). While no direct causal relationship between media coverage and public trust measures can be determined by this methodology, many studies have linked media consumption to people's world views (for a summary, see McCombs, 2005). A free and responsible press is essential to a public democracy. When news media fail to be a reliable monitor of those in power, societal trust is fractured.

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#### Appendix: Code sheet

##### Source

1=NYT  
2=JT

##### Article number

1-

##### Word count

1-

##### Month

3= March  
4 = April  
5 = May  
6 = June

##### Day

1-31

##### Primary topic

1= Nuclear power/radiation  
2 = other earthquake effects

##### Secondary topic

1 = nuclear power/radiation  
2 = other earthquake effects

##### Tepeco source cited

1 = no tepco source mentioned  
2 = expert  
3 = PR/spokesperson/generic/officials  
4 = executive  
5 = more than one source  
6 = laborer

##### Risk level

0 = risk not discussed  
1 = no risk  
2 = uncertain risk  
3 = minimal risk/minimized risk  
4 = moderate risk (radiation risk scale =4)  
5 = high risk (radiation risk scale =5 or 6)  
6 = Chernobyl (radiation risk scale =7)

##### Tepeco is victim, no fault (low crisis responsibility)

1 =yes  
2 = no

##### Tepeco has minimal fault, cause is accident (minimal responsibility)

1 = yes  
2 =no

##### Tepeco caused event (strong responsibility)

1 =yes  
2 = no

##### Tepeco denial type

1 = not relevant (not in article)  
2 = outright denial (conflicting info)  
3 = attack the accuser  
4 = scapegoating  
5 = more than one, 2-4

##### Tepeco diminishes responsibility (some responsibility, but minimizes)

1 =not relevant  
2 = justification  
3 = excuse-making  
4 = both justification and excuse-making

##### Tepeco rebuild

1= not relevant  
2 = offering compensation and/or apologizing  
3 = expressing regret and ingratiating  
4 = expressing concern and compassion  
5 = 2, 3  
6 = 2, 4  
7 = 3, 4

##### Tepeco reinforce

1 = not relevant  
2= praise others  
3 = remind of past good deeds  
4 = 2 and 3 both