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Developing a Valid and Reliable Measure of Organizational Crisis Responsibility

Kenon A. Brown[1] and Eyun-Jung Ki[1]

Abstract

This study intended to develop a reliable and valid measure of organizational crisis responsibility that could be uniquely applied to public relations research. The three-dimensional measure was constructed using rigorous two-step pilot tests and a nationwide panel full administration survey. The constructed measures were further refined using exploratory and confirmatory factor analysis, and resulted in a twelve-item scale, consisting of three items for intentionality, three items for locality, and six items for accountability. The confirmatory factor analysis was used to test the hypothesized factor structure and confirmed that the dimensions of the scale had reliable and valid factor structure.

Keywords

public relations, crisis responsibility, scale construction

In public relations scholarship, crisis communication has evolved dramatically over the past thirty years. For example, a recent meta-analysis found that seventy-seven scholarly articles dedicated to crisis communication were published in *Public Relations Review* and *Journal of Public Relations Research* between 1987 and 2006, compared to no articles published on the subject between 1975 and 1987.[1] Heath stressed the financial and reputational advantages to having an effective crisis communication plan in place as a main reason of increased interest in crisis communication research, concluding that crisis communication "has virtually become a discipline rather than a sub-discipline [of public relations]."[2]

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With the popularity of crisis communication research, its methodological approaches have transitioned from case studies to more empirical, evidence-base research, including experimental research.[3] In particular, Coombs stated that an important area of crisis communication that needs to be the focus of future research is the understanding of reactions from stakeholders to crisis response.[4] To understand these reactions, studies should focus on how specific responses to crisis have an effect on stakeholders' emotions, anger, behavioral intentions, and perception of crisis responsibility and organizational reputation.[5] Similar to other disciplines, including psychology and marketing, as future studies are conducted to measure these constructs, the gap between the need for better, more valid measures and the lack of these measures must be addressed to enhance empirical research.[6] Reliable and valid scales should be adapted or created to measure these constructs as precisely as possible. Such measurement of constructs is an important component of all scientific research.[7]

One construct that is vital to understand stakeholders' reactions to crisis responses is the perception of an organization's responsibility in a crisis situation. An organization's financial and reputational well-being during a crisis situation can depend greatly on the amount of responsibility the public and an organization's stakeholders place on it.[8] Crisis responsibility is a key variable in the situational crisis communication theory (SCCT) theoretical framework, a widely used framework for evidence-based crisis communication research.[9] Despite the essence of crisis responsibility as a variable in crisis communication, the scales adapted to measure the construct either vary in reliability or do not measure all aspects of crisis responsibility accurately.[10]

Therefore, the purpose of this study is to construct an organizational crisis responsibility scale. Using the scale construction process described by Spector and Netemeyer, Bearden, and Sharma, this study attempts to create a crisis responsibility scale for further validation and use in future evidence-based crisis communication research.[11] With a reliable and valid multidimensional scale, this study will move one step forward to measure stakeholders' reaction to crisis responses in a more accurate manner. Prior to developing a scale for crisis responsibility, the two key concepts, crisis and crisis responsibility, must be explicated. After defining these terms, the following components are discussed: (1) the basic premise behind Coombs's SCCT theory and its impact on measuring crisis responsibility, (2) the typical scales used to measure crisis responsibility in empirical studies and their issues as a measurement of crisis responsibility, and (3) the scale construction process.[12]

Literature Review

The first step to develop a reliable and valid scale is to define the concept accurately. "Crisis" is defined 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."[13] Three key elements exist in this definition. First, crisis is a perception. Even if an organization does not believe that a crisis exists, ultimately the public's perception represents the reality of the situation. In other words, if an organization's stakeholders believe a crisis exists, then it does in fact exist.[14]

Penrose examined the role of perception and concluded that the public's perception of a crisis is a critical element in crisis planning and affects crisis outcomes.[15] Second, while a crisis is unpredictable, it is not unexpected.[16] Organizations that effectively plan for crises can better anticipate when a crisis will hit and can therefore attenuate the damage of a crisis.[17] Finally, a crisis can, and almost always will, generate negative outcomes. However, if handled effectively, quickly, and systematically, a crisis has the potential to generate positive outcomes for the organization and its stakeholders.[18]

Crisis Responsibility

Coombs first operationalized the term "crisis responsibility" as "the degree to which stakeholders blame the organization of the crisis event."[19] During a crisis, stakeholders tend to identify a responsible party to shoulder the blame while attempting to reduce the harm caused.[20] The amount of blame placed on an organization is an integral component of the amount of crisis responsibility associated with an organization, which can also be interpreted as the amount of fault placed on the organization.[21] The level of crisis responsibility is an ideal indicator of the level of reputational threat for an organization.[22] Depending on the level of responsibility held by an organization, this threat can lead to several negative outcomes, including damaged image, legitimacy, and reputation for the organization, as well as financial and legal liability.[23]

Several aspects have been used to determine the degree of responsibility that stakeholders place on organizations during crisis situations. One component of crisis responsibility pertains to whether the act that perpetuated the crisis was intentionally caused by the organization or someone within the organization. If the crisis arose from a purposeful act by someone within the organization, then the act is considered *intentional*.[24] Greater responsibility is placed on organizations for intentional crises than those coming about unintentionally.[25] Another component of crisis responsibility pertains to whether the crisis was an *internal* or an *external* matter. Generally, stakeholders hold organizations more accountable for crises they perceive to be internal to the organization rather than external.[26] The degree of responsibility also depends on stakeholders' perceptions of whether the organization could have done something to prevent the crisis from happening.[27] Organizations that take the steps to prevent and prepare for certain potential threats to the organization can mitigate the amount of responsibility they will later need to assume if a crisis situation arises.[28] Studies have confirmed that the concepts of blame and responsibility are highly correlated constructs, thus indicating that stakeholders do not distinguish between the concepts of blame and responsibility.[29]

Operationalizing Crisis Responsibility: SCCT

SCCT is a postcrisis communication theory intended to help crisis managers determine the most effective ways to communicate with stakeholders following a crisis when important instructing and adjusting information has been given.[30] SCCT has its

Table 1. Coombs's (2007) Crisis Typology Based on Situational Crisis Communication Theory.

Victim cluster: Very little attribution of crisis responsibility

Natural disasters: When an organization is damaged as a result of the weather or "acts of God," such as earthquakes, tornados, floods, hurricanes, and bad storms

Workplace violence: When an employee or former employee commits violence against other employees on organizational grounds

Rumors: When false or misleading information is purposefully circulated about an organization or its products in order to harm the organization

Malevolence: When some outside actor or opponent employs extreme tactics to attack the organization, such as product tampering, kidnapping, terrorism, or computer hacking

Accidental cluster: Low attribution of crisis responsibility

Challenge: When the organization is confronted by discontented stakeholders with claims that it is operating in an inappropriate manner

Technical-error accidents: When the technology utilized or supplied by the organization fails and causes an industrial accident

Technical-error product harm: When the technology utilized or supplied by the organization fails and results in a defect or potentially harmful product

Preventable cluster: Strong attribution of crisis responsibility

Human-error accidents: When human error causes an accident

Human-error product harm: When human error results in a defect or potentially harmful product

Organizational misdeeds: When management takes actions it knows may place stakeholders at risk or knowingly violates the law

roots in Weiner's attribution theory, which holds that when an event is a success or failure, people investigate how the outcome came about to determine who they ought to praise or blame.[31] Once the "judge" attributes responsibility for a situation to someone or something, that agent is praised or blamed. By doing so, certain emotions are triggered based on the attribution, and ultimately, those emotions will influence future behavior.[32] Three dimensions are at play when people make attributions: locus, stability, and controllability. *Locus* refers to whether the event in question was a result of a person or people in the organization (internally) or the environment (externally). *Stability* has to do with whether the causes of the event have changed over time (unstable) or if the causes of the events were always present (stable). *Controllability* deals with whether or not the cause of the event was one that the involved party could control or one over which they lacked control.

The basic premise of SCCT is that a crisis is an ideal event for triggering an attribution search because it can threaten an organization's performance, reputation, and stakeholders' perceptions.[33] SCCT first measures the initial crisis responsibility attributed to an organization by determining the crisis type.[34] Coombs and Holladay[35] synthesized a list of crisis types from several other typologies found in other crisis literature,[36] based on the level of controllability demonstrated by each crisis type. Table 1 provides the synthesized crisis typology. The level of crisis responsibility is further affected by the crisis history and relationship history of the organization.[37]

Crisis Responsibility Scales

In crisis communication, three different scales have been used to measure attribution or responsibility in a given crisis situation.[38] Coombs[39] used the full version of the McAuley, Duncan, and Russell[40] scale in the initial study linking crisis communication and attribution theory and found that only locus/personal control yielded an acceptable reliability ($\alpha = .84$). However, the other two factors—external control and stability—did not yield acceptable reliabilities ($\alpha = .57$ and $\alpha = .44$, respectively). As a result, subsequent studies have used only the personal control scale to measure crisis responsibility, and these reliabilities have ranged from .70[41] to as high as .88.[42]

Inapplicability of the two factors and the wide variation in reliability for the measure may be a result of its origin. The attribution scale was originally developed to measure individual attribution, not organizational attribution. For this reason, McAuley, Duncan, and Russell's scale may not tap organizational attribution in crisis management situations.[43] The scale has produced acceptable reliabilities when used to measure individual attribution.[44] Therefore, establishing an organizational crisis responsibility scale based on the SCCT framework and attribution theory would move the field forward in terms of measurement of crisis responsibility.

Another measure of crisis responsibility was developed by Griffin, Babin, and Darden.[45] This scale specifically measures the assignment of blame and responsibility. This scale was based on Kelley's principle of covariance.[46] The premise of covariation asserts that when an event occurs, people will seek information over time regarding the internal and external factors that could have contributed to the event and will accordingly attribute the cause to one or more of the three following factors: the *person*, the object, or situation (which was called the *stimuli*), and the environment or circumstances of the situation (which was referred to as the *times*). Griffin, Babin, and Darden's scale was a six-item scale to measure blame and responsibility toward both the organization and the situation.[47] The studies typically use three items among the scale—two items that measure the blame involving the circumstances surrounding the crisis and one item that measures the blame that lies with the organization.[48] The reliabilities for these studies have ranged from .80 to .91. However, this scale fails to measure other important aspects of crisis responsibility, such as intentionality[49] and preventability.[50]

Lee created a two-item crisis responsibility scale to establish evidence for her model of consumers' evaluations of organizations during crisis situations.[51] The two items measured the amount of responsibility the organization should bear and the degree to which the organization should be blamed, respectively. This scale has yielded acceptable reliabilities in several studies.[52] This scale, however, uses only two items to measure crisis responsibility. Spector suggests that multi-item scales that measure all dimensions of a construct provide better reliability.[53] Although this scale produces an acceptable range of reliability, it does not comprehensively address the variety of crisis responsibility dimensions previously discussed.

The aforementioned scales of crisis responsibility have a couple of main concerns to be addressed. First, although attribution theory is the theoretical background of SCCT, the reliability issues of the McAuley, Duncan, and Russell scale,[54] as well as

the adaptation of using a scale that is meant to measure individual attribution rather than organizational attribution, could provide measurement issues. Second, the other two scales, Griffin, Babin, and Darden's[55] and Lee's,[56] fail to measure all key aspects of crisis responsibility. Creating a crisis responsibility scale specific to the discipline can provide more accurate measure of the construct, which can help further enhance and improve empirical research in crisis communication.

Method

The aforementioned issues of the three scales can be resolved with the construction and validation of a crisis responsibility scale that would be unique to crisis communication research. Using Netemeyer, Bearden, and Sharma's four-step process,[57] this study attempted to create a crisis responsibility scale and applied the theory behind SCCT to validate the scale.

Defining Crisis Responsibility and Creating Initial Scale

According to the scale construction process, the first two steps are to define the construct and its dimensions and to generate the scale items. The first step is considered the most important step in the scale construction process because all dimensions of the construct should be addressed to ensure high construct validity.[58] Prior to a scale development, it must be clear what the scale is designed to measure.[59] A thorough literature review is essential to define the construct and explicate its dimensions because it provides theories identifying the construct that would be useful as an independent or a dependent variable (i.e., SCCT), and it will uncover important dimensions that are used in generating the scale items.[60]

The next step is to design the scale by generating and evaluating the measurement items.[61] The concept of domain sampling gives the basis for item generation. In domain sampling, a pool of items is generated from a survey of previous literature that addresses the elements of the construct measured, and this pool is used to arrive at the final scale after several tests of validity and reliability.[62] The use of an initial pool of items based on existing literature is a step to ensure content validity, or that the scale measures the theoretical domain of the construct measured.[63] When generating the item pool, a researcher must consider the desired size of the scale and the wording of the items suggested for the initial pool. This scale is intended to measure crisis responsibility as one dimension. The scales used in previous studies have as few as two items[64] and as many as twelve items.[65] When writing scale items, Netemeyer, Bearden, and Sharma suggested that wording clarity, wording redundancy, avoiding double-barreled items, and finding a balance between positive items and negative (reverse-coded) items should be considered.[66]

The nature of the response choices is another decision to be made. The three most common response choices for scale items are choices of agreement, evaluation, and frequency.[67] Agreement scales ask to what extent the respondents agree with the scale items. Evaluation scales ask the respondents to rate each item. Frequency scales ask

the respondents how often they believe each scale item should or would occur. For this scale, the items are all agreement scale items, asking respondents to what extent they agree or disagree with the statements made about the organization in question.

As stated above, the first two steps in scale creation are to define the construct and explicate its dimensions, and create the initial item pool. To enhance evidence-based crisis communication research, this scale measures crisis responsibility based on the operational definition provided by Coombs and Holladay: "the degree to which stakeholders blame the organization of the crisis event."[68] To create a crisis responsibility scale, a thorough literature review leads to the inclusion of the following key dimensions:

1. Intentionality—the degree to which the crisis was created purposefully by a member or members of the organization.[69]
2. Preventability—the degree to which the crisis could have been avoided by the organization.[70]
3. Fault—the degree to which the organization can be held accountable for the crisis.[71]
4. Locality—the degree to which the crisis is an internal matter.[72]

Measuring these dimensions helps create an accurate measurement of crisis responsibility; therefore, creating a multidimensional scale would be essential to accurately measure crisis responsibility. Based on the definition and explication of crisis responsibility, and the examination of previous scales measuring crisis responsibility, the initial item pool of nineteen items was generated. Appendix A gives the initial item pool.

Pilot Test

After the initial pool of items is generated and evaluated for content and face validity, the next step in the scale construction process is to design and conduct studies to refine the scale.[73] The pilot test is an initial testing of the scale for further refinement and editing. The pilot test is conducted to reduce the number of items in an initial pool, and is also used to edit or reword confusing or ambiguous items in the scale. The scale is subject to critique in an effort to eliminate or revise ambiguous, confusing, or misleading items.

After the initial item pool was created, two pilot tests were conducted to ensure validity and to edit and proofread scale items. The first pilot test was the evaluation of the initial item pool by an expert panel. Spector suggests that experts in the field of study examine the initial item pool before initial statistical testing to check for face and construct validity.[74]

The expert panel consisted of a convenience sample of nineteen researchers in crisis communication and public relations. The panel was asked to examine the initial item pool and make suggestions for elements of the scale items that needed to be refined, edited, or deleted, using open-ended comments. Out of the nineteen researchers who were contacted to evaluate the scale, nine provided feedback.

After revisions were made based on the experts' feedbacks, the second pilot test was conducted to pretest the scale. The questionnaire was pretested among thirty-seven participants recruited from students in two undergraduate classes at a large public university. The questionnaire began with a news article giving information about a crisis situation. The article was about a hurricane causing Amtrak to suspend service between New York and Boston. Participants were given the article and asked how strongly they agree or disagree with the statements provided in the item pool using a 7-point Likert-type scale, which was used for every step in the scale testing process. The pretest data were analyzed to find the reliability of the scale. The participants were also asked to analyze the wording of the questionnaire items, and after the participants took the survey, they were asked to comment on the items. A few items were corrected accordingly to increase readability. The preliminary scale for validation included eighteen items. Appendix B provides the preliminary scale that was used in the full administration of the scale.

Full Administration

After the pilot testing was finished, a full administration of the crisis responsibility scale was conducted. The goal of a full-scale administration is to test the reliability and validity of the scale according to the theoretical background of the construct.[75] As it is the first theoretical framework that provides a basis for empirical testing of crisis communication, SCCT was used to validate the crisis responsibility scale.

Participants

A sample of 298 participants was recruited using an online panel company for the study. Using a panel provided the researchers a more representative sample of the country than using a student sample, and the use of an online panel is timelier and more cost-efficient.[76] The sample consisted of 116 males (39.1%) and 181 females (60.9%). The mean age of the sample was 46.8 years, with a range from 19 to 85 years old.

Instruments

Crisis Situations. The questionnaire was similar to the pretest one, except six different crisis situations, based on Coombs's crisis typology,[77] were presented in the form of a news article. The authors attempted to select six distinct crises that would represent the three levels of crisis types that Coombs presents in his typology—each level has a degree of initial responsibility (low, moderate, high) that is placed on the organization.[78] The article used for the pretest was used for the full administration. The second article was a workplace violence article: a former Ohio State University custodial worker shot and killed two employees before killing himself. The third article presented a challenge crisis: a strike among 1.3 million South African government workers to demand a wage increase from the South African government. The fourth article presented a technical-error product harm crisis: Ferrari recalled the 458 Italia model

due to glue from the wheel arch leaking onto the exhaust. The fifth article presented a human-error product recall crisis. The human-error product recall story described the recall of eggs raised at Wright County Egg Farms caused by a salmonella outbreak due to unsanitary work conditions. The sixth article was an organizational misdeed article and described Dell's former chief accounting officer being sued for accounting fraud by the U.S. Securities and Exchange Commission.

Comprehension Check. Two questions were included to check comprehensions. After participants read the news article, they were asked, "What is the name of the organization accused in the preceding article?" and "What is the crisis presented in the preceding article?" The cases with incorrect responses to the two questions were excluded from the sample.

Crisis Responsibility Measure. Appendix B gives the eighteen-item scale divided into the four dimensions proposed: intentionality (four items), preventability (five items), fault (four items), and locality (five items). Items were tested in the pilot test and the full administration using a 7-point Likert-type scale.

The main data collection was conducted online using a panel. The questionnaire contains six sections. The first section contained the informed consent form for the participants to review before continuing the questionnaire. The next section provided one of the six articles describing a crisis situation. The third section contained the manipulation check and the crisis responsibility scale. The fourth and fifth sections contained another news article and the same manipulation check and crisis responsibility scale. Each participant was randomly exposed to two of the six news articles. The final section contained a statement thanking the participant for completing the study and provided demographic questions.

Statistical Procedures for Data Analysis. First, an initial reliability test was conducted using Cronbach's alpha. Reliability was measured for the overall scale and for the four separate dimensions. After items were excluded using the initial reliability analysis, exploratory factor analysis was conducted to attempt to reduce the number of items in the scale, if necessary, and to check the validity of the dimensions of the scale. Next, confirmatory factor analysis was used to confirm the measurement model and further test the internal consistency and validity of the scale.[79] Finally, theoretical validity was measured by using correlation analysis to determine the relationship between crisis responsibility (measured with this scale) and two constructs in previous literature: organizational reputation[80] and negative word of mouth.[81]

Results

Initial Reliability Analysis

The first reliability analysis was conducted using the initial eighteen-item scale. The initial scale had a Cronbach's alpha of .95, well above the acceptable reliability of .70.

Table 2. Initial Item-Total Statistics for Crisis Responsibility Scale.

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
INT1	73.9436	762.806	.551	.950
PRE1	73.5697	742.496	.821	.945
FAU1	73.4127	744.020	.803	.945
LOC1	73.9436	748.802	.788	.946
INT2	74.2240	746.330	.725	.947
PRE2	73.5062	741.024	.851	.945
FAU2	73.7266	739.641	.831	.945
LOC2	73.8871	748.782	.785	.946
PRE4	73.2663	756.235	.766	.946
LOC4	74.2187	766.093	.664	.948
FAU4	74.1093	745.158	.795	.946
INT4	74.0494	756.556	.620	.949
PRE5	73.4215	751.262	.789	.946
LOC5	73.7549	745.210	.803	.945
INT3*#	74.1076	769.753	.545	.950
PRE3*#	73.7919	797.621	.358	.953
LOC3*#	73.4903	782.515	.479	.951
FAU3*#	73.2857	760.664	.664	.948

Refer to Appendix B for a detailed list of the scale items.
*Reversed coded.
#Omitted from further analysis.

Table 2 gives the item-total statistics for the full scale. The initial scale has a score range from 18 to 26; the full administration has a mean score of 78.1, with a standard deviation of 29.07. The scale of each of the four dimensions also had an acceptable reliability: intentionality ($\alpha = .90$), preventability ($\alpha = .88$), fault ($\alpha = .91$), and locality ($\alpha = .85$). For each of the four dimensions, any items that would improve reliability if removed were omitted from the subsequent analyses. This resulted in four items being omitted, resulting in a fourteen-item scale for further analysis.

Exploratory Factor Analysis

After the scale was reduced from eighteen to fourteen items using Cronbach's alpha, the scale was analyzed using exploratory factor analysis. A principal component factor analysis with promax rotation was used for dimension reduction. Netemeyer, Bearden, and Sharma suggested that oblique rotation methods like promax, as opposed to orthogonal rotations such as varimax, are more efficient for scale construction and reveal more meaningful theoretical factors.[82] The researchers used criteria set by Shimp and Sharma, and only factors with a loading greater than .70 were retained for the confirmatory factor analysis.[83] An average interitem correlation greater than .20 was also used as a criterion; all scale items met that criterion.[84]

Table 3. Factor Loadings for Crisis Responsibility Scale Items by Dimension.

	Dimension 1 (preventability/fault)	Dimension 2 (intentionality)	Dimension 3 (locality)
INT1		1.026	
INT2		0.746	
INT4		0.941	
PRE1	0.934		
PRE2	0.934		
PRE4	0.903		
PRE5	0.853		
FAU1	0.953		
FAU2	0.900		
FAU4	0.741		
LOC1			0.818
LOC2			0.819
LOC4(*)			—
LOC5			0.666

Principal components factor analysis with promax rotation (kappa = 4). Refer to Appendix B or Table 3 for the full administration scale.
*Omitted from further analysis.

Although the proposed scale has four dimensions, exploratory factor analysis revealed three dimensions. Items for measuring preventability and fault loaded under the same factor, which could suggest a high intercorrelation among the measurement items of the two variables. Because of the loading of the measurement items for these two dimensions under one factor, preventability and fault are combined into one dimension (accountability), which will be addressed in the discussion section. Intentionality and locality loaded successfully as separate factors. One item used to measure locality loaded in a dimension by itself and was omitted from the scale for further analysis, resulting in a thirteen-item scale for confirmatory factor analysis. Table 3 gives the rotated factor loadings for the proposed scale.

Confirmatory Factor Analysis

Confirmatory factor analysis was used to test construct validity of the proposed scale by testing the relationship between specific scale items and their respective dimensions.[85] After regression weights were examined to check model convergence, four fit indices were used to assess the model fit: goodness of fit index (GFI), adjusted goodness of fit index (AGFI), Tucker–Lewis index (TLI), and comparative fit index (CFI). For the scale construction model to be a good fit, all four indices (GFI, AGFI, TLI, and CFI) should be greater than .90.[86] Table 4 gives the fit indices for the initial proposed model and the final proposed model for the crisis responsibility scale.

Table 4. CFA Fit Indices for Initial and Final Model.

	χ^2	GFI	AGFI	TLI	CFI
Initial model	342.4 ($p < .001$)	.910	.867	.955	.965
Final model	282.6 ($p < .001$)	.919	.876	.959	.968
Criterion	$p > 0.05$	GFI > .90	AGFI > .90	TLI > .90	CFI > .90

AGFI = adjusted goodness of fit index; CFI = comparative fit index; GFI = goodness of fit index; TLI = Tucker–Lewis index.
All indices should be above .90 for model acceptance.

After eliminating items that had unusually high modification indices (greater than 20), the final scale consisted of twelve items and three dimensions. All four indices (GFI, AGFI, TLI, and CFI) should be greater than .90.[87] However, for our final model, our AGFI was not greater than .90 (AGFI = .876). Because the elimination of any additional items jeopardized the construct validity and reliability of the scale, the final scale was kept. Future testing and analysis should be done to further validate this scale. Figure 1 gives the measurement model for the final scale.

Final Reliability Analysis

Appendix C gives the final twelve-item scale proposed to measure crisis responsibility. The final scale had a reliability of .95, the same as the initial scale. The scale of each of the final three dimensions also had acceptable reliability: intentionality ($\alpha = .91$), accountability ($\alpha = .97$), and locality ($\alpha = .89$). The final scale had a score range from 12 to 84; the final scale had a mean score of 52.50, with a standard deviation of 21.25.

Theoretical Validity Analysis

To begin testing for theoretical validity, the researchers measured two constructs related to crisis responsibility in previous research: organizational reputation[88] and negative word of mouth.[89] Previous studies have tested the relationship between crisis responsibility and organizational reputation, which is the key relationship in SCCT theory.[90] There is evidence of a significant, negative correlation between the two constructs: the more responsibility placed on the organization, the more negative the organization's reputation. The highest correlation in previous studies between crisis responsibility and organizational reputation was –.60.[91] For this study, organizational reputation was measured using Coombs and Holladay's[92] five-item, 7-point Likert-type scale modified from McCroskey's scale used to measure credibility.[93] Using this scale, the correlation between crisis responsibility and organizational reputation was significant and negative, $r(566) = -.651$, $p < .001$.

Richins defined negative word of mouth as communication among consumers about an organization that is detrimental to its success.[94] Previous studies found that the more negative the perceived image of an organization, the more likely the public
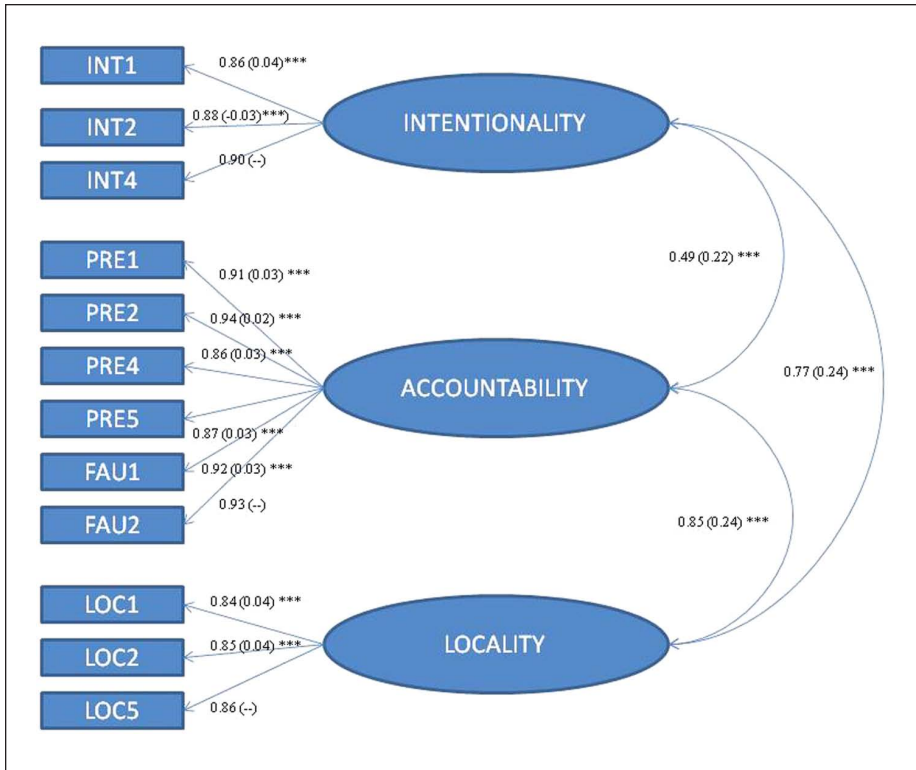
Figure 1. Measurement model for final proposed crisis responsibility scale.
Numbers outside parentheses indicate standardized coefficients. Numbers inside parentheses indicate standard errors.
***$p < .001$.

is to produce negative word of mouth.[95] The highest correlation in previous studies between crisis responsibility and negative word of mouth was .45.[96] For this study, negative word of mouth was measured using a three-item, 7-point adaptation of a scale created by Coombs and Holladay.[97] Using this scale, the correlation between crisis responsibility and negative word of mouth was significant and positive, $r(566) = .621$, $p < .001$.

Discussion

The primary goal of this study was to develop a reliable and valid measure of a crisis responsibility that could be uniquely applied to public relations research, especially empirical research in crisis communications using either Coombs's SCCT theory or other theoretical approaches. The four-dimensional measure of crisis responsibility was initially tested and refined using Netemeyer, Bearden, and Sharma's four-step

process for scale construction.[98] Specifically, this study conducted rigorous two-step pilot tests and a nationwide panel full administration survey. The constructed measures were further refined using exploratory factor analysis and confirmatory factor analysis. The factor analysis resulted in including twelve items in the final crisis responsibility scales, consisting of three items for intentionality, three items for locality, and six items for accountability. Confirmatory factor analysis was used to test the hypothesized factor structure and confirmed that the three dimensions of the crisis responsibility scale had a reliable and valid factor structure. The final measurement items are displayed in Appendix C.

Initially, the scale was designed to have four dimensions: intentionality, preventability, fault, and locality. During the exploratory factor analysis, items were loaded into three dimensions. The intentionality and locality items loaded under their respective factors. However, as the preventability and fault items loaded under one common factor, these dimensions were combined into one dimension: accountability. This new dimension, with six items, is conceptualized as "the degree to which the organization could have avoided the crisis." The other two dimensions are defined as follows: *intentionality* as "the degree to which the crisis was created purposefully by a member or members of the organization," and *locality* as "the degree to which the crisis is an internal matter."

These three dimensions of crisis responsibility scale can be associated with the three dimensions of Weiner's attribution theory,[99] which is the theoretical basis of SCCT. Intentionality can be associated with Weiner's definition of controllability—whether or not the cause of the event was one that the involved party could control or one over which the party lacked control. An organization cannot intentionally cause a crisis that it cannot control; therefore, low levels of intentionality could equate to low levels of accountability. Accountability can be slightly associated with the definition of stability—whether the causes of the event have changed over time or if the causes of the events were always present. This is more of a stretch than the other two; however, accountability does deal with the presence of resources and knowledge to prevent the crisis situation. If these resources are not present in the organization, it points to the realization that the issues were present for the crisis to occur. Locality can be associated with the definition of locus—whether the event in question was a result of a person or people in the organization or the environment. Because the scale can be associated with attribution theory, it is an acceptable scale for use when testing SCCT. The uniqueness of the scale to public relations also allows it to be used for other crisis communication research.

When comparing the scale to the other three scales mentioned for use in crisis responsibility research, advantages are evident. Compared to McAuley, Duncan, and Russell's attribution scale,[100] this scale was created specifically for the use of measuring an organization's responsibility, not individual responsibility. The proposed scale has achieved a higher Cronbach's alpha (.95) than the highest recorded alpha level for the McAuley, Duncan, and Russell scale (.88).[101] The proposed scale has also produced higher correlations between organizational reputation and negative word of mouth than the McAuley, Duncan, and Russell scale. Critics might point out the

number of items used to measure accountability (six items) compared to the other two dimensions, so it is worth noting that in previous empirical crisis communication research, when using the attribution scale, six items were used to measure locus/personal control, compared to three items each used for external control and stability, and both scales have the same number of items (twelve).

When compared to the Griffin, Babin, and Darden's blame scale,[102] this scale is more in line with Weiner's attribution theory,[103] rather than the principle of covariance,[104] which is an advantage because SCCT is based more on Weiner's attribution theory. This scale also is multidimensional, which gives it an advantage over the blame scale. This scale also achieved a slightly higher reliability than the highest recorded reliability in crisis communication for the blame scale (range of .80 to .91 in previous studies). When compared to Lee's crisis responsibility scale,[105] this scale's main advantage is the multidimensionality it brings to crisis communication research.

The ultimate goal of this study was to develop an instrument of crisis responsibility, which is applicable across crisis situations. This skeleton then can be adapted to fit other crisis types such as "victims of crises," "accidental crises," "intentional crises," and so on. Further work still is needed to address the question of whether a universal scale might be developed that captures crisis responsibility for any type of crisis. Therefore, other scholars should be encouraged to scrutinize the face validity of the measures adapted from this scale and use the same kind of rigorous scale reliability and validity testing.

This instrument can prove valuable when considering the level of crisis responsibility is a primary predictor of the potential reputational damage a crisis might cause.[106] Evaluating the level of crisis responsibility in an accurate manner would be useful to minimize several negative outcomes, such as image damage, legitimacy and reputation for the organization, and financial and legal liability as an organization can find a better way to handle the crisis situation.

This study attempted to develop a scale for evaluating crisis responsibility. The measure attained desirable levels of reliability and validity and can be applied to better understand public's evaluation of the levels of organizational crisis responsibility. Because the scale is designed specifically for public relations, it is adequate for practitioners to use in research involving crisis situations. Understanding stakeholder perception of an organization's crisis responsibility is essential to understanding how to approach the crisis situation, and this scale is concise, reliable, and valid enough for practical use.

The researchers stress two practical applications for this scale after further future refinement and validation. First, organizations can use the measure of organizational crisis responsibility developed in this study to detect their level of responsibility and the public's assessment regarding the given crisis. Based on the evaluation, organizations can allocate their resources to the right crisis strategies to minimize the damage from the crisis. Second, the scale can be used to create the crisis management plan by measuring the responsibility attributed to certain types of crises that the organization could face based on specific stakeholder groups. This information can be used to determine the appropriate responses and actions to use in case of a crisis situation.

Limitations and Future Research

As this is the initial study proposed to create a crisis responsibility scale, further and more rigorous testing must be done to further refine the scale and to gain more external validity across crisis situations. First, this scale was not compared to the other three scales during the scale construction process. Therefore, future research needs to conduct to compare the four scales in a similar context to test their advantages and disadvantages. Second, the scale was not tested for its full theoretical applicability, or how well the scale correlates with other constructs measured in crisis communication research, including SCCT variables. Future research can be conducted to provide evidence that the crisis responsibility scale correlates with other constructs according to existing crisis communication theory.

The final proposed scale does not measure the external factors that could be responsible for a crisis situation, partly because these items were omitted from the scale after analysis. The researchers do believe, however, that the organization's environment could factor in the degree of responsibility placed on the organization. Future research should examine this impact, either through the testing of the impact as an intensifier of responsibility, or as a separate scale altogether.

As with the previous scales mentioned in this article, the proposed scale measures crisis responsibility under the assumption that members of the organization are in fact considered part of the organization, that is, if they are responsible for a crisis, then the organization is responsible for the crisis. Future research should look into the differences in the degree of responsibility placed on organizations for crises that are clearly created by an individual issue compared to an organizational issue.

Note: (*) indicates that the item should be reversed-coded.

Appendix A

Proposed Crisis Responsibility Scale for Pilot Testing

Intentionality

- The cause of the crisis was intentionally done by someone (or something) in the organization.
- The cause of the crisis was created purposefully by someone (or something) in the organization.
- The cause of the crisis was deliberately caused by the organization.
- The crisis was caused by the intentional acts of someone in the organization.

Preventability

- The cause of the crisis could be managed by the organization.
- The organization had the power to prevent the crisis from occurring.
- The organization could have prepared for the crisis.

A weakness in the organization caused the crisis.
The crisis was preventable by the organization.
The cause of the crisis could have been handled by the organization.

Fault

The organization should be blamed for the crisis.
The crisis is the organization's fault.
The organization should be held accountable for the crisis.
The organization should be accountable for the outcomes of the crisis.

Locality

Internal issues to the organization contributed to the crisis.
The organization had control over the crisis.
An issue outside the organization is to blame for the crisis. (*)
The crisis can be blamed on someone (or something) other than the organization. (*)
The crisis was caused by someone (or something) within the organization.

Note: (*) indicates that the item should be reversed-coded.

Appendix B

Revised Crisis Responsibility Scale for Full Administration

Intentionality

INT1: The cause of the crisis was an intentional act by someone in the organization.
INT2: Someone in the organization knowingly created the cause of the crisis.
INT3: Someone in the organization did not willfully create the cause of the crisis. (*)
INT4: A deliberate act by someone in the organization caused the crisis.

Preventability

PRE1: The organization had the capability to stop the crisis from occurring.
PRE2: The crisis was preventable by the organization.
PRE3: The crisis could not have been averted by the organization. (*)
PRE4: The organization has the resources to prevent the crisis from occurring.
PRE5: The organization could have avoided the crisis.

Fault

FAU1: The organization should be held accountable for the crisis.
FAU2: The organization should be blamed for the crisis.
FAU3: The organization is not responsible for the crisis. (*)
FAU4: The organization should be accused for causing the crisis.

Locality

LOC1: The crisis was caused by a weakness in the organization.
LOC2: Internal organizational issues contributed to the crisis.
LOC3: The crisis can be blamed on an issue outside the organization. (*)
LOC4: The cause of the crisis was something inherent to the organization.
LOC5: The crisis was caused by a problem inside the organization.

Appendix C

Final Proposed Crisis Responsibility Scale

Intentionality

The cause of the crisis was an intentional act by someone in the organization.
Someone in the organization knowingly created the cause of the crisis.
A deliberate act by someone in the organization caused the crisis.

Accountability

The organization had the capability to stop the crisis from occurring.
The crisis was preventable by the organization.
The organization has the resources to prevent the crisis from occurring.
The organization could have avoided the crisis.
The organization should be held accountable for the crisis.
The organization should be blamed for the crisis.

Locality

The crisis was caused by a weakness in the organization.
Internal organizational issues contributed to the crisis.
The crisis was caused by a problem inside the organization.

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Notes

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