



Measuring a leader's ability to identify and avert crisis

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Abstract

Leaders often have influence over the impact of pending crises by either preventing or minimizing the crisis (Pearson and Mitroff, 1993; Bonvillian, 2013). With crisis looming just around the corner, a leader's ability to identify, avert, and manage a crisis has become a fundamental element in organizational sustainability. Yet, most literature on crisis is focused in the field of communication or crisis management during the actual event. Wooten and James (2008) provide a conceptual model that describes leadership competencies in each of the five stages of crisis management. The development of the crisis identification and aversion instrument was to operationalize the Wooten and James (2008) conceptual model with a focus only on the pre-crisis stages of crisis management competencies. The crisis identification and aversion instrument has been validated through item reduction and content validation through the use of a Delphi panel of experts, item evaluation through the use of a large sample and factor analysis and assessment of construct validity. The validated instrument measures a leader's ability to identify and avert crisis by measuring three competencies: sensemaking, participatory management, and resourcefulness. Each scale has high internal consistency.

Keywords: Crisis leadership, crisis aversion, sense making, participatory management, resourcefulness, quantitative

1 Introduction

Crises continue to be an ever-present factor to our reality, in the past, the present, and the future (DuBrin, 2013). In fact, Fink (1986) posits that organizations should expect to always have a pending crisis right around the corner. Although there are numerous definitions of a crisis, this article utilizes Pearson and Clair's (1998) definition, "An organizational crisis is a low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly" (p. 60). In other words, any event that disrupts normal business practice describes a crisis. Fink (1986) suggests that a crisis has multiple stages with the event being only one stage. Many identify with a crisis event but have minimal knowledge to the other stages within crisis management.

Following the 1982 Tylenol poisoning and recall crisis management emerged as a field of study during. From that point, crisis management was studied by the field of communication with limited empirical research (Mitroff, 2004; Pearson & Mitroff, 1993). Historically, crisis management has focused solely on managing a crisis so business can continue as usual. A cost analysis approach is used to determine what action, if any, will be taken (Mitroff, 2004). Furthermore, the Institute of Crisis Management estimates that 50% of crises occur due to action or inaction by leadership. These data suggest a lack of focus on a leaders' ability to identify and avert crisis not only because of different leadership competencies but also due to traditional models of thinking such as risk management.

Crisis leadership is defined with two goals: (a) crisis aversion and (b) if aversion is not an option, mitigate the crisis in such a way that the organization becomes more resilient than before the crisis (Mitroff, 2004; Wooten & James, 2008). Bonvillian (2013) suggests that leaders with the ability to identify and avert crisis have a propensity to utilize crisis as a strategic catalyst to move the organization forward. Furthermore, these competencies lack appropriate attention in the academy and in leadership education and training; yet, Bonvillian (2013) postulates that the competencies needed for precrisis stages differ from what is needed during normal business practice. In a qualitative study based on archival data from the Institute of Crisis Management between the years of 2000-2006, Wooten and James (2008) developed a conceptual model of competencies needed by leadership in order to lead well through the five stages of crisis management. The five stages of crisis management are (a) signal detection; (b) preparation and prevention; (c) damage control and containment; (d) business recovery; and (e) learning and reflection (Mitroff, 2004). This article focuses on the first two stages of the Wooten and James (2008) model which are aimed at crisis aversion, more specifically with organizational generated or human-induced crises. These stages include signal detection and preparation and prevention.

2 Theoretical Foundation

Other constructs have a nomological interdependency with crisis leadership thus an understanding of them is relevant as they are distinct constructs. These constructs include crisis management, environmental scanning, risk management and emergency management.

Crisis management identifies probable crises and develops plans of action to prevent and mitigate the crisis event. However, it lacks the consideration of linking events together that may be predictions of a looming and low-probability crisis (Mitroff, 2004).

Environmental scanning includes the following areas: industry or market, regulatory, economic, social, and political (Albright, 2004). With a focus on identifying potential threats, it aligns closely with crisis leadership as crisis leaders continually scan the environment for a pending threat (James & Wooten, 2005). Yet again, the focus is more on the probable than the linkage of the improbable.

Risk management is the traditional approach that organizations utilize to assess potential liability. That said, risk management is more about the cost of the crisis occurring versus the cost of attempting to prevent the crisis (Williams, Bertsch, Dale, Smith & Visser, 2006). Furthermore, there are aspects of risk management that contribute to crisis leadership due to its focus on an organization's vulnerabilities and costs. If the cost to recover from the crisis is less than the cost of aversion, then risk management advocates to let the crisis occur.

Emergency management, differing from the other constructs, focuses on the low-probability events and develops a plan of action to prevent and mitigate (Waugh & Tierney, 2007). However, emergency management lacks the authority to decide to avert a crisis or even how to redesign after a crisis in order to create greater resiliency. Emergency management is merely tactical.

Crisis leaders do not just follow plans or limit themselves to probable events or a narrow perspective. Crisis leaders see the big picture, have an ability to link improbable events together in order to interpret a potential crisis, continuously engage in pre-crisis audits to identify warning signs and have an ability to redesign an organization toward greater resiliency following a crisis (Mitroff, 2004).

Currently, there is one other quantitative tool that measures crisis leadership. The Crisis Leader Efficacy in Assessing and Deciding (C-LEAD; Noonan Hadley, Pittinsky, Sommer, & Zhu, 2011) scale is an existing quantitative instrument that assesses a leader's ability in the third stage of crisis management, damage control and containment. However, there is no empirical data to support what effective leadership looks like in terms of competencies in the pre-crisis stages. The research focused on the pre-crisis stages and developed and validated a crisis identification and aversion tool to assess a leader's ability to avert crisis.

3 Methods

DeVellis (2012) suggests an eight steps process to develop and validate a new scale. These steps include (a) determine clearly what it is you want to measure based on a theoretical foundation, (b) generate an item pool, (c) determine the format for measurement, (d) have the initial item pool reviewed by experts, (e) consider inclusion of validation items, (f) administer items to a large sample, (g) evaluate the items, and (h) optimize the scale length.

First, a review of the literature was conducted utilizing the five competencies found in the first two stages of the Wooten and James (2008) model as well as the constructs with nomological interdependencies to crisis leadership. Four out of the five competencies had existing validated scales; as such, these scales were used as the foundation for the item pool. The validated instruments utilized include the following: (a) perspective taking, 7 items (M.H. Davis, 1980); (b) issue selling, 9 items (Bishop,

Webber, & O'Neil, 2011); (c) organizational agility, 25 items (Charbonnier; Voirin, 2011); and (d) creativity, 30 items (Gough, 1979). The fifth competency, sensemaking, required a theoretically founded proposed set of 30 items. The original pool included 115 items. An initial evaluation of the items for duplicates or combining to strengthen an item reduced the list from 115 items to 97.

Next, 29 participants were identified for the Delphi panel in which 13 participated in the two iterations. Their expertise areas included higher education faculty in the field of organizational leadership, crisis management practitioners, and senior-level management who have encountered crisis in their tenure. The Delphi panel refined and reduced the item pool by identifying the level of importance of each item toward the construct on a 5-point Likert scale (1 = Not at all important, 2 = Minimally important, 3 = Somewhat important, 4 = Moderately important, and 5 = Very important). Items with a score of 4 or higher and had 80% of the experts' rating over 4 remained in the item pool. Additionally, there was opportunity for the experts to provide feedback on which items were duplicates or needed more clarity. The first iteration reduced the item pool from 97 to 54 items. The second iteration reduced the item pool from 54 to 41 items.

Following the Delphi panel two-stages of refinement and reduction, a large sample was used to evaluate the scale. This study utilized snowball sampling. The minimum sample size needed was 205 participants based on a rate of 5-10 respondents per item with 41 items remaining (DeVellis, 2012; Nunnely, 1978). Originally, there were 389 responses with 111 missing over 50% of the questionnaire; thus, the final sample size was 278. Of the 278, mean substitution was utilized as the imputation approach for any missing items; however, these included no more than two per respondent.

The first section of the survey included demographic questions about the respondent. These demographics included gender, industry, years of employment at current organization, and years of work employment experience. There were also questions to describe the relationship between participant and the leader identified for evaluation. The data collected included position of the leader identified, position of the respondent in comparison to the leader identified, years worked with or for the identified leader, and lastly, currently working for the identified leader.

The following section included the 41 remaining items to describe the five competencies. These were rated on 7-point Likert scale and utilized "describes him/her very accurately" to "describes him/her very inaccurately" as anchors. Respondents were asked to identify a leader they had worked with or for over the last five years and to answer the questions based on how accurately or inaccurately the statement described that leader.

The final section included three scales for validation of the crisis aversion measurement: (a) Discriminant Validity: C-LEAD, 9 items (Noonan Hadley et al., 2011); (b) Predictive Validity: General Risk Propensity in Multifaceted Business Decisions, 5 items (Hung & Tangpong, 2010); and Predictive Validity: Leadership Effectiveness Scale, 6 items (Ehrhart & Klein, 2001).

Analysis of the large scale began with the Kaiser-Meyer-Olin measure of sampling adequacy and Bartlett's test of sphericity in order to determine if factor analysis was the appropriate method of evaluation. Once determined that it was the appropriate method, the second step utilized principle component factor analysis in SPSS. Direct oblimin was used for factor rotation and interpretation based on the strength of the correlation of items. The next step evaluated the eigenvalue, the scree plot, and the communalities. Lastly, factor analysis was used for further item reduction and factor loadings. Factor analysis was run two times. Any item that was cross-loaded or below a .35 significance after each iteration was removed. There

were three remaining factors determined by loading on separate factors and all three had high internal consistency with a Cronbach alpha over .90. Once the three factors were determined, each factor was tested with the three validity scales. Predictive validity was measured based on the correlation between the factors and the Leadership Effectiveness Scale (Ehrhart & Klein, 2001) and the General Risk Propensity in Multifaceted Business Decisions (Hung & Tangpong, 2010). Discriminant validity utilized factor analysis with the C-LEAD (Noonan Hadley et al., 2011) and the three factors to determine if they loaded separately.

4 Results

The purpose of this section is to provide a summary of the data analysis conducted at each stage of the data collection process. There are three stages: item development, scale evaluation, and scale validation.

3.1 Item Evaluation

After the initial reduction of the item pool based on duplicates and combining of similar themes, a Delphi panel was the next step. Of the 29 invited participants, 13 responded to two iterations of the item pool. The experts were asked to rate the importance of the item to describe the variable. A 5-point Likert scale was used with "not at all important" and "very important" as anchors. Items retained in the instrument were based on items that averaged a 4.0 ranking or higher as well as at least 80% of the participants ranking the items over a 4.0. The first iteration reduced the 97-item pool to 54 items. The second iteration reduced the 54 items to 41 items.

3.2 Scale Evaluation

In the evaluation of the scale, demographics were collected about the respondents along with the leader they evaluated in the survey. Next, tests were conducted to determine whether or not factor analysis was the appropriate method; then, factor analysis was run two times.

3.2.1 Demographics

The demographic data casts a picture of the respondents. In terms of industry, 43.2% work in education followed by healthcare (9.4%), government (6.8%) and all other industries under 6%. The split between genders was male = 42.6% and female = 57.2%. 86.3% have over 10 years work experience.

Respondents were asked to consider a leader that they observed over the past 5 years and respond based on how the items described the leader. 42.1% evaluated their current supervisor with the second highest rating conducted on senior leadership (35.3%). The position of the respondent ranked highest with 56.1% being immediate subordinates.

Table 1. Data Corresponding to the Leader Identified and Respondent (N=278)

Variable	Percentage
Position of the Leader Identified	
Immediate Supervisor	42.1
Department Head (one level above supervisor)	14.4
Senior Management	35.3

Peer Leader	7.9
Position of Respondent	
Immediate Subordinate	56.1
Member of Department	21.2
Member of Organization	12.6
Peer Leader	9.7
Years worked with or for the identified leader	
1-2 years	36.3
3-4 years	29.5
5+ years	33.5
Currently working for this leader	
Yes	50.7
No	49.3

3.2.2 Scale Identification and Validation

Factor analysis was utilized for scale identification. The data were evaluated on the number of missing questions per respondent. Initially, there were 389 respondents with 111 responses missing over 50% of the questionnaire. Hair, Black, Babin, and Anderson (2010) recommend the removal of respondents with over 50% missing data. With the removal of 111 respondents, N=278 remained statistically significant. The 278 respondents had no more than 2 missing questions totaling 34 missing items in the remaining 278. With 34 equating to .003% of all items, it was determined to utilize mean substitution as the imputation approach.

Factor analysis requires additional testing to determine the factorability of the data. The Kaiser-Meyer-Olkin (KMO), which measures the sampling adequacy, was .972. The Bartlett's test of sphericity had a significance of .000. Lastly, the communalities were assessed and all items had communalities greater than .50. The data were supportive of the use of factor analysis.

The correlation matrix supported that most of the items have a medium to large strength correlation, ranging from .30-.1.0. Principle component factor analysis was used to extract factors. Due to the high correlation, an oblique approach was used with the use of direct oblimin for rotating the factors. Hair et al. (2010) suggests using a factor loading of .35 with a sample size N=278. The first iteration of factor analysis showed a four-factor solution with 72.07% variance. Both the Kaiser criterion or eigenvalue rule and the scree test were also utilized and supported the analysis.

Further refinement of the factors required the removal of cross-loading items. There were three cross-loaded items. The fourth factor only had one item load at a significant level and that item was also cross-loaded. Therefore, the removal of cross-loadings reduced the factors from four to three factors. Factor analysis was run again with the remaining 36 items and had one cross-loaded item to remove. Thus, the final analysis supported three distinct factors. The factors were interpreted as Participatory Management, Sense making, and Resourcefulness. Table 2 shows the final rotated pattern matrix.

Table 2. Final Rotated Pattern Matrix for Reduced Set of 36 Items

Item	Factor 1	Factor 2	Factor 3					
Is sincere	.959	-.026	-.165	Is inventive	.383	.441	.088	
Encourages employees to suggest ideas and new solutions	.899	-.012	-.165	Is resourceful	.251	.426	.322	
Is honest	.834	-.068	.015	Does not dismiss things that do not seem normal but rather tries to interpret them	.021	-.208	.953	
Encourages cooperation between people with different skills and profiles	.828	.029	.034	Able to see how events link together when others do not	-.064	.193	.807	
Implements solutions to facilitate internal cooperation	.826	.121	-.049	Able to see patterns well	-.038	.133	.797	
Tries to look at everybody's side of a disagreement before making a decision	.816	-.195	.160	Tells someone when something is not normal routine	.066	-.074	.781	
Encourages employee participation in the crisis identification process	.780	-.085	.148	Spends time reflecting on events or behavior that does not fit the norm to determine if there is a link	.117	-.081	.768	
Believes there are two sides to every question and tries to look at both sides	.779	-.160	.152	Able to provide meaning to discrepancies in the normal routine	.099	.045	.758	
Encourages employees to act with a view to continuously improve products, processes, and/or working methods	.775	.179	-.041	Able to identify something that does not fit with normal routine	-.097	.182	.728	
Encourages employees to take initiative to learn new things	.748	.074	.046	Recognizes when something seems off	.083	.124	.715	
Organizes the management and sharing of knowledge and know-how among employees	.739	.206	.029	Brings potential failures in the system to direct supervisor	.111	.040	.637	
Develops employees' skills with a view to the organization's future development	.738	.185	.027	Provides meaning for glitches in the system	.175	.152	.559	
Informs employees about upcoming changes and their implementation	.738	.008	.142	Scan and examines the environment to anticipate and prevent risks	.172	.312	.450	
Communicates information about the organization and its action plans to all levels in terms easily understood by all	.647	.169	.106	Note. Significant loadings are in bold.				
Clearly distributes strategy to all hierarchical levels	.547	.226	.165					
Is insightful	.510	.235	.210	3.2.3 Factors				
Is capable	.413	.319	.273	<i>Dimension 1: Participatory Management</i>				
Is confident	-.020	.693	.083	There are seventeen items with this latent variable. Participatory Management is described as the inclusion of employees in terms of communication, training, information, solutions, and interactions. The scale has high internal consistency as evidenced by the Cronbach's alpha, $\alpha=.97$.				
Able to make decisions quickly when circumstances change	.236	.545	.268					
Handles pending crisis information in real time	.213	.519	.266					
Deploys resources easily to respond to opportunities and threats encountered	.218	.513	.293					
Able to identify and seize rapidly the best opportunities which come up in the environment	.325	.485	.222					

- Tries to look at everybody's side of a disagreement before making a decision
- Clearly distributes strategy to all hierarchical levels
- Communicates information about the organization and its action plans to all levels in terms easily understood by all
- Informs employees to suggest ideas and new solutions
- Encourages employee participation in crisis identification processes
- Employee's skills are developed with a view to the organization future development
- Organizes the management and sharing of knowledge and know-how among employees
- Encourages employees to act with a view to continuous improvement of products, processes, and/or working methods
- Implements solutions to facilitate internal cooperation
- Encourages cooperation between people with different skills and profiles
- Encourages employees to take initiatives and to learn new things
- Believes there are two sides to every question and tries to look at both sides
- Is capable

- Is insightful
- Is honest
- Is sincere

Dimension 2: Resourcefulness

Seven items describe the latent variable of resourcefulness. These items describe a leader's ability to be agile in terms of resources. It includes agility in terms of decision making, identifying opportunities, actions, adapting to circumstances, handling information, deploying resources or assessment of the situation along with a confidence in one's ability to navigate a system fluidly. The scale has high internal consistency as evidenced by the Cronbach's alpha, $\alpha=.95$

- Able to make decisions quickly when circumstances change
- Handles pending crisis information in real time
- Adapts very quickly to pending crisis developments
- Deploys resources easily to respond to opportunities and threats encountered
- Able to identify and seize rapidly the best opportunities which come up in the environment
- Is confident
- Is resourceful

Dimension 3: Sense making

There are eleven items within this latent variable. These items emphasize the ability to identify warning signs of a looming crisis and bring it to the attention of others. An important element of sense making is the ability to acknowledge what may seem implausible, interpret events as being linked, and observe what is out of a normal routine. The scale has high internal consistency as evidenced by the Cronbach's alpha, $\alpha=.95$.

- Able to identify something that does not fit with normal routines
- Able to see patterns well
- Able to see how events link together even when others do not
- Spends time reflecting on events or behavior that does not seem to fit the norm to determine if there is a link
- Recognizes when something seems off
- Does not dismiss things that do not seem normal but rather tries to interpret it
- Tells someone when something is not normal or routine
- Able to provide meaning to discrepancies in the normal routine
- Provides meanings for glitches in the system
- Brings potential failures in the system to direct supervisor
- Scans and examines the environment to anticipate and prevent risks

3.3 Scale Validation

Four validation tests were conducted to further strengthen the crisis identification and aversion tool. These types include content, predictive, and discriminant.

Content validity was measured through the Delphi panel process. The individuals were deemed experts in the field of leadership, or more specifically, crisis leadership. The refinement and reduction of the items led to 41 items toward the construct and established content validity.

Predictive validity was tested with the three final factors with the Risk Propensity Scale and the Leadership Effectiveness Scale. Table 3 demonstrates that the bivariate correlations support that the three scales correlate to risk propensity. According to Pallant (2010), $r=.30-.49$ determines medium strength correlation and $r=.50-1.0$ determines large strength correlation. Thus, Resourcefulness has a large correlation with Risk Propensity. Participatory Management and Sense making have a medium correlation with Risk Propensity.

Table 3. Intercorrelations of the Three Factors for Crisis Identification and Aversion with Risk Propensity (N=278)

Variable	Participatory Management	Resourcefulness	Sense making	Risk propensity
Part.Man	-			
Resource	.838	-		
Sense Mak	.866	.852	-	
Risk Prop	.410	.522	.387	-

Because the literature posits that crisis leadership competencies differ from competencies in leadership during normal business operations, the goal was to determine if there was a correlation between the three scales and leadership effectiveness. Table 4 demonstrates that the bivariate correlations support that the three scales correlate to leadership effectiveness. Based on Pallant's (2010) guidelines for correlation, all three scales have large strength correlation with leadership effectiveness. Thus, one could postulate that developing effective leaders is correlated to crisis identification and aversion abilities within a leader.

Table 4. Intercorrelations of the Three Factors for Crisis Identification and Aversion with Leadership Effectiveness (N=278)

Variable	Participatory Management (P.M)	Resourcefulness (Res)	Sense making (S.M)	Leadership Effectiveness (L.E)
P.M	-			
Res	.838	-		
S.M	.866	.852	-	
L.E.	.861	.755	.776	-

Discriminant validity was tested with the C-LEAD scale. The C-LEAD scale assesses a leader's ability to lead during the third stage of crisis management, damage control and containment. The purpose of testing for discriminant validity is to identify if any of the factors required in the pre-crisis stages are also required in the third stage which is during the crisis event. Table 5 supports that C-LEAD and Participatory Management loaded separately with only four items cross-loaded.

Table 5. Discriminant Validity – C-LEAD and Participatory Management Scale

Item	Factor 1	Factor 2
Organizes the management and sharing of knowledge	.943	
Encourages employees to take initiatives and to learn new things	.912	
Encourages employees to suggest ideas and new solutions	.911	
Employee's skills are developed with a view to the organization's future development	.898	
Encourages cooperation between people with different skills and profiles	.879	
Implements solutions to facilitate internal cooperation	.870	
Informs employees about upcoming changes and their implementation	.857	
Encourages employee participation in crisis identification processes	.843	
Tries to look at everybody's side of a disagreement before making a decision	.792	
Encourages employees to act with a view to continuous improvement of products, processes and/or working methods	.781	
Communicates information about the organization and its action plans to all levels in terms easily understood by all	.775	
Clearly distributed strategy to all hierarchical levels	.731	
Is capable	.508	.419
Can summarize key issues involved in a situation to others regardless of how much data he/she has		.913
Can make decisions and recommendations even when he/she doesn't have as much information as he/she would like		.874
Can estimate the potential deaths and injuries that may occur as the result of his/her decisions or recommendations at work		.704
Can anticipate the political and interpersonal ramifications of his/her decisions		.697
Can modify his/her regular work activities instantly to respond to an urgent need		.619
Can make decisions and recommendations even under extreme time pressure		.595
Can determine which information is critical to relay to other units in advance of them requesting it	.385	.573
Can assess how the members of the general public are being impacted by his/her unit's actions or inactions during times of adversity	.355	.569
Can keep others abreast of his/her work activities without over-informing or under-informing them	.453	.472

Note. Cross-loading items are in bold

Table 6 supports that C-LEAD and Sense making loaded on separate factors with only two items cross-loaded.

Table 6. Discriminant Validity – C-LEAD and Sense making Scale

Item	Factor 1	Factor 2
Spends time reflecting on events or behavior that does not seem to fit the norm to determine if there is a link	.905	
Does not dismiss things that do not seem normal but rather tries to interpret it	.893	
Tells someone when something is not normal or routine	.866	
Able to see how events link together even when others do not	.813	
Able to provide meaning to discrepancies in the normal routine	.808	
Able to see patterns well	.800	
Recognizes when something seems off	.779	
Brings potential failures in the system to direct supervisor	.698	
Able to identify something that does not fit with normal routines	.689	
Provides meanings for glitches in the system	.523	.364
Can summarize key issues involved in a situation to others regardless of how much data he/she has		.882
Can make decisions and recommendations even when he/she doesn't have as much information as he/she would like		.879
Can anticipate the political and interpersonal ramifications of his/her decisions		.799
Can keep others abreast of his/her work activities without over-informing or under-informing them		.666
Can estimate the potential deaths and injuries that may occur as the result of his/her decisions or recommendations at work		.626
Can assess how the members of the general public are being impacted by his/her unit's actions or inactions during times of adversity		.624
Can make decisions and recommendations even under extreme time pressure		.617
Can determine which information is critical to relay to other units in advance of them requesting it	.374	.587
Can modify his/her regularly work activities instantly to respond to an urgent need		.567

Note. Cross-loading items are in bold

The items on the C-LEAD and Resourcefulness scale did not load on separate factors. Thus, Resourcefulness is a relevant dimension for crisis aversion as well as during the crisis event.

5 Discussion

The purpose of the study was to operationalize the two first stages in the conceptual model of crisis leadership developed by Wooten and James (2008) by developing and validating an instrument to measure competencies for crisis identification and aversion. Through the development and validation steps, the item pool describing Wooten and James (2008) five

competencies loaded onto three separate factors: Participatory Management, Sense making, and Resourcefulness. The Leadership Effectiveness Scale and the General Risk Propensity Scaled established predictive validity for all three dimensions. The C-LEAD Scale established discriminant validity for Participatory Management and Sense making.

5.1.1 Practical Application

There are differing perspectives where practical application is relevant. These areas include the leadership scholar, the crisis manager practitioner, the human resource and development practitioner, and the educator.

The leadership scholar is now able to increase the quantitative research on crisis leadership, specifically on a leader's ability to avert crisis. Correlations, predictions, and differences can be studied with crisis leadership and other constructs such as transformational leadership, servant leadership, and organizational theories. This research will enhance the literature on crisis leadership.

The crisis manager practitioner can utilize the tool to assess the strengths and weaknesses of the current organizational structure as it relates to personnel and crisis plans. Training can be developed to increase cross-functional leaders in order to better equip an organization to be crisis averse.

Human resource and development practitioners often create leadership development programs. Now with a stronger understanding of the competencies needed to be crisis averse, HRD practitioners can build training specific to improve these competencies. An additive for HRD practitioners is that crisis leadership and effective leadership have a strong correlation.

Lastly, the educator would benefit due to the ability to include empirical data on crisis leadership in the leadership and business curriculum. By including crisis leadership in the education of future leaders, these leaders will be more prepared to avert organizationally generated crises.

5.1.2 Limitations

Due to the utilization of snowball sampling, there was a high percentage of respondents in the field of education, 43.2%. A post-hoc analysis was conducted to determine if this overrepresentation skewed the results. An independent samples t test was conducted with the three factors' mean scores. The first independent variable was higher education and the second independent variable was all other industries. The findings report that no significant differences exist in the mean leaves of the three scales.

5.1.3 Future Research

Due to the large number of items within the crisis identification and aversion instrument along with the items in the validity scales, there was hesitancy to include too many demographic questions because of test fatigue. This assumption proved itself true 111 responded stopping at or around question 29. That said, demographics on ethnicity, geographic regions, or age would add to the literature.

Secondly, the instrument was taken from a follower's perspective. Future research with the same tool taken as a self-report would be valuable. The challenge is whether or not a self-report would bring biases that skew the analysis.

5.1.4 Conclusion

Due to the increased crises occurring in organizations today, and the negative impact they have on organizations, leaders need to understand what it means to be a crisis leader. The Crisis Identification and Aversion Tool provides a means to understand how a leader can develop into a crisis

averse leader. The first step of this understanding is quantitative assessment.

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