

Using a Situational Q-Sort to Assess Perceptions of a Food Recall Message as a Function of Delivery via Social, Organizational or Traditional Media

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Behavior in response to a crisis will result from a combination of individual and situational variables. In spite of the increased recognition of the importance of situational variables, a literature and methodological toolkit for the study of situational influences that is comparable with those available for individual variables has not yet emerged. However, the recently developed Riverside Situational Q-sort provides a novel method for quantifying subjective impressions of any situation. This proof-of-concept demonstration asked participants to complete the RSQ in response to an imaginary food crisis situation communicated via one of three message sources (social media, organizational website and traditional media). Results illustrate the potential of this method to provide quantitative evaluations of subjective responses to crisis situations.

1. Introduction

Crisis are significant, disruptive events that feature a rapid onset (Coombs, 2007). The explosive growth of social media challenges crisis communicators to disseminate safety messages to affected audiences quickly and in a manner that promotes maximum compliance (Freberg, 2012a). Crisis communicators currently do not know whether user-generated content published online via social media will produce effects on

receivers that are similar or different when compared with the effects of messages conveyed through more traditional mass media or official organizational websites. To respond appropriately, we need more concrete information about how crisis situations are perceived, how messages impact audiences, and how these influences map onto actual audience behaviors. Preliminary efforts at furthering our understanding of these phenomena through quantitative methods have included the application of established intention models, such as

the theory of reasoned action (TRA) or the theory of planned behavior (TPB; Fishbein & Ajzen, 2010) to audience response to safety messages in a crisis (Freberg, 2012b).

A crisis can be the perception of an event rather than the event itself, which suggests that individual reactions to a perceived crisis can be quite diverse (Penrose, 2000; Vihalemm, Kiisel, & Harro-Loit, 2012). In other words, behavior in response to a crisis will result from a combination of individual and situational variables. A substantial literature exists in psychology that attempts to evaluate the interactions between individual differences (personality) and responses to situations (Funder et al., 2012). Historically, the primary focus of this literature has been heavily weighted towards understanding individual personality differences, leading to the development of instruments and even new statistical methods (e.g. factor analysis) specific to this goal. The psychological study of individual factors has produced a rich repertoire of highly valid and reliable personality instruments, including the NEO-PI-R (Costa & McCrae, 2011).

Psychology's emphasis on individual factors has not been shared by many scholars studying crisis. On occasion, researchers look for individual differences in responses to crisis situations and messages. For example, Choi and Lin (2008) investigated the impact of individual differences in consumer involvement and emotion on responses to the 2007 Mattel product recalls. However, the vast majority of the crisis literature focuses instead on situational variables, such as how a message is framed (Littlefield & Quenette, 2007; Cho & Gower, 2006), the predictability and controllability of the crisis (Jin, 2010), or the type of information contained in a crisis message (Sturges, 1994; Coombs, 2006, 2010). The assumption is that an understanding of the situation is sufficient, and that market segmentation on the basis of individual differences has a lower priority.

Over-emphasizing either individual differences or situational variables at the expense of the other runs the risk of losing sight of the big picture. Rather than explaining person and situation variables as either/or, contemporary psychologists are beginning to emphasize their interactions. 'People change their behaviors across situations, but they also maintain their individuality' (Funder et al., 2012, p. 9). For crisis management professionals to predict audience responses to a crisis situation, we must back up a bit and ask a more basic question: What is psychologically important about a crisis situation that cuts across individual differences?

The difference in emphasis on person or situation variables in psychology and crisis management is also reflected in the methods used to investigate the respective phenomena. Psychology's study of personality is overwhelmingly quantitative. In contrast, the methods

used by crisis communication scholars to study situational variables are frequently qualitative, such as the use of interviews (e.g. Vihalemm et al., 2012) or content analysis (e.g. Choi & Lin, 2008). In some cases, experiments have been used to contrast audience responses to different messages (e.g. Freberg, 2012a). In general, however, quantitative methods for assessing the impact of situations on behavior have been relatively few and sparsely reported.

One reason for the paucity of quantitative research in both psychology and crisis management regarding purely situational variables is the lack of accepted instruments, which stands in marked contrast to the wealth of instruments available to measure individual differences. In spite of the increased recognition of the importance of situational variables in psychology, a literature and methodological toolkit for the study of situational influences that is comparable to those available for individual variables has not yet emerged. However, the recently developed Riverside Situational Q-sort (RSQ; Funder et al., 2012; Sherman et al., 2010) provides a novel method for quantifying subjective impressions of any situation. Participants sort 89 situational attributes into nine bins depending on how 'characteristic' of a target situation the attribute appears to be. A limited number of attributes can be assigned to each bin, leading to a quasi-normal distribution. This methodology provides a much-needed way to subject situations to the same type of careful, scientific analysis that has characterized the analysis of personality attributes. The free availability of an online version of the Q-sort from the University of California, Riverside's Riverside Accuracy Project (RAP) makes this technique available globally for interested crisis management practitioners and scholars.

In the current proof-of-concept demonstration, university undergraduates completed a situational Q-sort in response to one of three imaginary scenarios featuring a food recall message delivered via social media (Facebook), organizational media [the Centers for Disease Control (CDC) website] or traditional mass media (evening news on television). This comparison demonstrated the utility of the RSQ in capturing audience impressions of crisis situations. A general snapshot of perceptions of the food crisis situation can be captured in quantitative terms that will allow for comparisons with perceptions of other types of crisis situations. This detailed understanding of how crisis situations are perceived can lead to more precisely targeted messages. Significant differences between perceptions of the food crisis as a function of medium would illuminate relationships between the way participants view the situation and the means used to communicate the situation. Combined with an assessment of intent to comply with a crisis message, RSQ results can pinpoint perceptions that are predictive of compliance.

2. Method

2.1. Participants

Twenty-four students (18 women and 6 men) attending a large, public, Western United States university were recruited from general education courses to participate in exchange for extra credit. The higher education experience of the participants ranged from 1 to 4 years, with a mean of 2.6 years. As would be expected in general education classes, the students' majors ranged from Agriculture (Animal Science) to Engineering to Science (Chemistry, Biology, Psychology) to Liberal Arts (Sociology, Music, History). All but one student reported regular and frequent use of social media.

2.2. Materials

Three scenarios were constructed as follows:

Scenario 1 (Social Media):

You read a blog post that a friend shared on your Facebook page about a recall for products containing contaminated cheese. The list of products containing the contaminated cheese includes brands sold at your local grocery store. Under the link, your friend comments that you should not purchase any products on the list until further notice. Your friend's post has been shared and liked by several of your family members and friends on Facebook.

Scenario 2 (Organizational):

You read a news bulletin on the Centers for Disease Control and Prevention (CDC) website about a recall for products containing contaminated cheese. The CDC provided a list of products containing the contaminated cheese, which includes brands sold at your local grocery store. The CDC bulletin recommends that you not purchase the cheese products on the list until further notice.

Scenario 3 (Traditional):

You heard a report on your local television evening news about a recall for products containing contaminated cheese. The news reporter provided a list of products containing the contaminated cheese, which included brands sold at your local grocery store. The news reporter recommended that you not purchase the cheese products on the list until further notice.

All participants completed a short demographic questionnaire and a manipulation check that asked them to rate the 'realism' of their scenario and their ability to 'imagine' themselves experiencing the scenario

on a 7-point Likert scale, with 1 meaning 'strongly disagree' and 7 meaning 'strongly agree'. The 89-item RSQ ('RAP Q-sort Resources', n.d.) was administered to each participant. Following completion of the RSQ, participants indicated their intention to comply with the food recall message ('I intend to avoid buying products...') on a 7-point Likert scale, with 1 meaning 'strongly disagree' and 7 meaning 'strongly agree'.

2.3. Procedure

All procedures received prior approval by the campus IRB. All instruments were administered individually to each participant one-on-one in an on-campus office setting. Participants first completed the demographic questionnaire. Each participant was randomly assigned to one of the three scenario groups, for a total of eight participants in each group (Block, 2008). After reading their respective scenario, each participant responded to the manipulation checks and then sorted the 89 RSQ situational attributes into 9 bins ranking from 'highly characteristic' to 'highly uncharacteristic'. Bins constrained the number of attributes that could be assigned to each as follows: 3, 6, 11, 15, 19, 15, 11, 6, 3. Finally, participants completed the intention items. This procedure required approximately one hour of time.

3. Results

All analyses were conducted using SPSS20.

3.1. Manipulation checks

The mean response on the realism scale was 5.79 and the mean response on the imagine scale was 5.63. Both were deemed acceptable, using criteria proposed by Dabholkar (1994).

3.2. Intention

All participants reported a very strong intention to comply with the food recall message, with a mean of 6.48 on a 7-point scale with a standard deviation of .85. No statistically significant differences were observed in intention to comply as a result of message source (social, organizational or traditional).

3.3. The RSQ

Correlations between 89-item profiles for each combination of judges were computed. In spite of exposure to three different media scenarios, inter-judge correlations showed a high level of overall agreement in perceptions of the situation, with 239 of the 276 inter-judge correlations significant at the .01 level (87%), 10 significant at the .05 level (4%), and the remaining 27 insignificant (10%).

Prototypes were constructed by averaging participant responses across media conditions to each attribute and then transforming the results using a requeuing process (Block, 2008). Specifically, the three items with the lowest means were assigned a value of 1 and so on, according to the number of items allowed in each of the nine bins from least to most characteristic. According to Block (2008), a prototype is constructed by assembling the top most characteristic attributes (8s and 9s) and the bottom least characteristic attributes (1s and 2s). Table 1 displays the resulting prototype of the food safety situation.

Considerable agreement occurred across all three message source conditions as indicated by overlapping attribute prototypes. Four out of the nine most characteristic items were shared across all three message sources. Regardless of media condition, the situation was seen as likely to make some people tense and upset, as requiring a decision to be made, as requiring

rational thinking, and as relevant to bodily health. Six out of nine attributes considered least characteristic to the situation were shared across all three media conditions, including the physical attractiveness of perceivers, the presence of sexual stimuli, playfulness, potential enjoyment, the presence of aesthetic stimuli and attempts to impress the perceiver.

Although the small sample size and large numbers of attributes weaken further data analysis, for purposes of demonstration, one-way ANOVAs were conducted to see if any of the attributes were viewed differently as a function of media condition. As shown in Table 2, four attributes were significantly different between media groups at the .05 level, $F_s(2, 21) = 3.41\text{--}4.33$, $p_s < .05$, while one attribute was significantly different at the .01 level, $F(2, 21) = 7.40$, $p < .01$. Bonferroni post hoc tests indicated that among the four attributes that were different at the .05 level, two of the differences occurred between the traditional and organizational

Table 1. Food Safety Situation Prototype

Attribute number	Attribute	Mean score
Most characteristic and salient attributes:		
60	Situation is relevant to bodily health of P. (e.g., possibility of illness and a medical visit)	8.125
25	Rational thinking is called for.	7.291667
24	A decision needs to be made.	7.25
5	Someone is trying to convince P of something.	7.166667
33	Situation would make some people tense and upset.	6.958333
45	A quick decision or quick action is called for.	6.875
66	Situation is potentially anxiety inducing.	6.791667
52	Someone other than P is counted on to do something.	6.75
48	Situation entails or could entail stress or trauma.	6.708333
Least characteristic and salient attributes:		
70	Situation includes stimuli that could be construed sexually.	1.833333
31	Physical attractiveness of P is relevant.	1.958333
18	Situation is playful.	2.583333
1	Situation is potentially enjoyable.	2.833333
72	P is being abused or victimized.	2.833333
65	Situation includes aesthetic stimuli. (e.g., art, music, drama and beauty)	2.958333
23	P is being blamed for something.	3.083333
74	Potential romantic partners for P are present.	3.166667

Table 2. Attribute Scores for Media Groups

Attribute	Media groups			F	η^2
	Social	Organizational	Traditional		
26. Situation calls for self-restraint.	4.00 _{ab} (.48)	2.88 _a (.48)	4.63 _b (.48)	3.41*	.25
28. Affords an opportunity for P to do things that might make P liked or accepted.	5.75 _{ab} (.46)	6.25 _b (.46)	4.50 _a (.46)	3.90*	.27
33. Situation would make some people tense and upset.	5.13 _a (.53)	6.75 _{ab} (.53)	7.25 _b (.53)	4.33*	.29
46. Situation allows a free range of emotional expression.	6.00 _b (.40)	5.25 _{ab} (.40)	3.88 _a (.40)	7.40**	.41
50. Situation has potential to arouse guilt in P.	5.50 _b (.48)	3.75 _a (.48)	3.88 _{ab} (.48)	4.17*	.28

Note: * $p < .05$, ** $p < .01$. Standard deviations appear in parentheses below means. Means with differing subscripts within rows are significantly different at the $p < .05$ based on Bonferroni post hoc tests.

Table 3. Pearson Correlations for Intent and Attributes by Media Group

	Media group		
	Social	Organizational	Traditional
4. Someone is trying to impress P.	.803*	.394	-.625
26. Situation calls for self-restraint.	-.434	.058	.784*
31. Physical attractiveness of P is relevant.	-.121	-.061	-.943**
39. Situation may cause feelings of hostility.	.531	.288	.852**
48. Situation entails or could entail stress or trauma.	.475	.000	.791*
58. P is the focus of attention.	-.551	.749*	.837**
70. Situation includes stimuli that could be construed sexually.	.147	-.802*	-.381
71. Situational demands are rapidly shifting.	.067	-.763*	.431
84. Affords an opportunity for demonstrating verbal fluency. (e.g., a debate, a monologue and an active conversation)	-.725*	.068	-.557
85. People who are present occupy different social roles or levels of status.	.617	-.866**	-.102
87. Success requires cooperation.	.766*	-.682	-.401

Note: * $p < .05$, ** $p < .01$. $N = 8$ for all analyses.

groups, one occurred between the traditional and social groups, and one occurred between the social and organizational groups. A Bonferroni post hoc test revealed that the attribute that differed at the .01 level ('Others present might have conflicting or hidden motives') distinguished between the social ($M = 6.0$) and traditional groups ($M = 3.88$). The organizational group ($M = 5.25$) did not differ significantly from the social group ($p = .58$) and approached a significant difference with the traditional group ($p < .07$). Effect sizes ranged from .25 to .29 (small) for the attributes that differed at the .05 level, and effect size was .41 (medium) for the attribute that differed at the .01 level.

Also for demonstration purposes, correlations between the attribute rankings of each of the three groups with the measure of intention to comply with the food recall message were investigated. Recall that overall intention, as reported previously, did not differ significantly between the three media groups. As shown in Table 3, eight attributes correlated with the intention variable at the .05 level of significance, and four attributes correlated with the intention variable at the .01 level of significance. There was little overlap between the attributes that correlated with intent across the three media conditions. The three attributes that were significantly correlated with intent in the social media group were unique to that group. Of the four attributes in the organizational group and the five attributes in the traditional group that correlated significantly with intent, only one was shared ('P is the focus of attention'). This attribute's correlation with intent was significant at the .05 level in the organizational group, but was significant at the .01 level in the traditional group.

4. Discussion

Although the current proof-of-concept study addressed a key line of research for the authors (the use of social media in crisis messaging), there are no particular

boundaries constraining the types of situations that can be evaluated similarly using the RSQ. For example, it is easy to imagine using the RSQ to predict audience responses to a wide spectrum of situations, from methods of launching a product to diverse advertisement placements to sources and content of a crisis message.

The RSQ successfully quantified subjective perceptions of a food safety message delivered via three media sources. Regardless of media condition, participants viewed the food safety crisis in very similar ways, agreeing on four out of nine 'most characteristic' situational attributes and six out of nine 'least characteristic' attributes. Because of the quantitative nature of these data, the RSQ allows researchers to compare perceptions across several situations in a reliable manner. For example, perceptions of a food safety crisis could be compared with perceptions of other types of public health crises.

Perceptions of five specific attributes differed as a function of media outlet. Again, because of the small sample size of this demonstration study, these results should be viewed as indicating the potential of the procedure as opposed to firm evidence for differences that will replicate reliably. Four observed differences were significant at the .05 level with relatively small effect sizes, but one was significant at the .01 level with a moderate effect size. This attribute ('Others present might have conflicting or hidden motives') was ranked as significantly more characteristic in the social media condition than in the traditional media condition. The social and organizational media did not differ significantly on this attribute, and the difference between the organizational and traditional media groups fell just short of significance. This result is surprising given the remarkably low level of trust in the traditional media reported elsewhere (Morales, 2010). If confirmed by further research with larger numbers of participants, this perception might influence the

efficacy of crisis messages conveyed via social media and is worthy of further study with larger groups of participants.

One of the goals of the analysis of perceptions of crisis messages is to determine which aspects of a situation are correlated, with intent to comply with the message. In this small-scale demonstration, eight attributes were correlated with intent at the .05 level, and four attributes were correlated with intent at the .01 level. Of these four, three occurred in response to the traditional message and one occurred in response to the organizational message. Two were positively correlated with intent ('Situation may cause feelings of hostility' and 'P is the focus of attention'), and two were negatively correlated with intent ('People who are present occupy different social roles or levels of status' and 'Physical attractiveness of P is relevant'). While it is unclear how a crisis management practitioner might make use of 'Situation may cause feelings of hostility,' the importance of 'P is the focus of attention' (which was also significant in the organizational group, but only at the .05 level) is enlightening. By crafting crisis messages that make receivers feel that they are the focus of attention, higher levels of compliance might be achieved. The negative correlations are also of interest, as they suggest that seeing the situation as egalitarian (affecting people of differing status and attractiveness the same way) is linked with intent to comply. Crisis messages emphasizing a "we're all in this together" theme might enhance compliance.

Based on the outcomes of this proof-of-concept demonstration, it appears that the RSQ provides public relations and crisis management professionals with a valuable new tool for capturing audiences' subjective responses to situations in a quantitative manner that provides the opportunity to compare and contrast situations.

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