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Intention to comply with crisis messages communicated via social media

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ABSTRACT

The rapid growth of social media challenges crisis communicators to disseminate safety messages to affected audiences quickly and in a manner that promotes maximum compliance. A nationally representative consumer panel responded to food recall messages that varied in source (organizational or user-generated) and reliability (confirmed versus unconfirmed). Results indicated that intent to comply with a food recall message was stronger in response to organizational messages than to user-generated messages, but did not vary according to message reliability. Strong age cohort effects were seen in the responses to message source, with younger participants making less distinction than older cohorts between organizational and user-generated sources. Implications of the results for public relations and crisis communications theory and practice, limitations of the study, and recommendations for future research were discussed.

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1. Introduction

Contemporary public relations practice, and crisis communications in particular, is being challenged by the emergence of social media. Although many of the best practices used in traditional media are likely to remain effective in the domain of social media, some may require adaptation.

The existing literature in public relations has concentrated on the role of official spokesperson in communicating messages to various audiences (Grunig & Grunig, 2000; Kelleher, 2008; Wright & Hinson, 2009). This dominant model features the dissemination of information from one to many, with reciprocal opportunities for the many to interact with the one. Emerging technologies add the potential of a many-to-many channel of communication to the traditional one-to-many channel (Shklovski, Palen, & Sutton, 2008).

The urgency of providing reliable information to the many is especially acute during a crisis. The viral spread of information on social media could be viewed as an advantage to crisis professionals who must reach the public as quickly as possible. On the other hand, authoritative voices might have difficulty being heard against the noise of the many-to-many communication model made possible by social media. Crisis professionals need a solid, empirical foundation to maximize the advantages of social media while mitigating its disadvantages.

The research presented here explored two aspects of a food crisis message that are likely to impact listener compliance with a recall message. First, intent to comply to a message originating with an organizational source was compared to intent to comply with a message originating in a user-generated source. Second, intention to comply was assessed in

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response to messages containing confirmed or unconfirmed information. This study makes a number of contributions to the public relations and crisis communications literature by systematically varying these message attributes using a national, representative consumer panel.

1.1. Social media and crisis communication

Effective theories exist for guiding the responses of organizations responsible for a crisis, such as the situational crisis communication theory (SCCT; Coombs, 2004, 2007) and a modification of the SCCT that incorporates social media, the social-mediated crisis communication model (SMCC; Jin & Liu, 2010; Liu, Austin, & Jin, 2011). However, the primary focus of most crisis models appears to be reputation management, as opposed to predicting audience compliance with crisis safety messages.

Appropriate segmentation of the audience is essential to reaching all persons potentially impacted by a crisis (Heath, Lee, & Ni, 2009). One of the critical variables segmenting the audience in regards to messages communicated via social media is age. However, the relationship between age and social media use is in a constant state of flux, and requires regularly updated information.

One of the contributions of the current study is the use of a representative national consumer panel as opposed to the more typical undergraduate convenience sample. This provides the ability to observe critical age-related differences in responses to messages conveyed via social media.

1.2. Food crisis messages, message source, and message reliability

Food borne diseases have increased in the United States over the last several years. An estimated 76 million cases of food borne disease occur each year, and about 5000 of these cases result in death (CDC, 2005). However, “. . .the systematic study of effective [food] recall communications is in its infancy” (Hallman & Cuite, 2010, p. 24).

The advent of social media provides both opportunities and challenges for the effective dissemination of food safety messages. Little is currently known about the factors contributing to the credibility of user-generated content or its power to influence relative to content originating from organizations (Freberg, Graham, McGaughey, & Freberg, 2011). One of the goals of this study was to make a direct comparison between the effects of organizational and user-generated sources on a person's intent to comply with a food recall message.

Journalists and public relations professionals crafting crisis messages have systems and criteria for fact-checking that are not shared across the online community. Because the likelihood that uncertain information would be relayed is higher in user-generated sources than through organizational sources, an understanding of the potential impact of unconfirmed information would be helpful in constructing a crisis communication plan. This study specifically tests the impact of confirmed and unconfirmed information on the intent to comply with a food recall message.

2. Method

The procedure for the current study consisted of four steps: scenario construction based on focus group data, scenario realism checks, piloting the research instrument, and administration of the final instrument to a nationally representative consumer panel. All procedures received prior approval by the Institutional Review Board (IRB) at the authors' university.

2.1. Instrument development and testing

Four scenarios (Organizational—Confirmed, Organizational—Unconfirmed, User-generated—Confirmed, and User-generated—Unconfirmed) were constructed on the basis of data from three focus groups. Eight men and 16 women ranging in age from 18 to 81 years with a mean of 43 years participated in the focus groups. Based on discussion with these focus group participants, an example of an “organizational” source was operationalized as a credible organization, the Centers for Disease Control and Prevention (CDC). An example of a “user-generated” source was operationalized as a link to an individual, non-expert user's blog shared on Facebook, accompanied by likes and comments. “Confirmed” information was operationalized as containing a specific list of products being recalled, while “unconfirmed” information was operationalized as a message noting that a contamination was “likely” and “an investigation is underway.”

Realism checks for the four scenarios were conducted with a convenience sample of 26 undergraduates enrolled in a large, public university. Participants responded to two seven-point Likert scales (1 being “Strongly Disagree” and 7 being “Strongly Agree”) modeled after scenario realism checks used by Dabholkar (1994). The first scale stated “The situation described was realistic,” and the second scale stated “I had no difficulty imagining myself in the situation.” The mean realism score was 5.02 and the mean imagine score was 5.01. These scores were viewed as acceptable for proceeding with the experiment (Dabholkar, 1994). Further discussion with the realism check participants confirmed that the operationalization of the major constructs of each scenario was effective and that the constructs were distinct from one another.

A questionnaire was developed that assessed demographic information, self-reported use of social media, and three 7-point Likert items designed to measure intent to comply with a food recall message. The latter items were constructed following the protocol for measuring intention to comply with a persuasive health message set out by Francis et al. (2004).

Participants making up a convenience sample of 130 undergraduates ranging in age from 18 to 25 years enrolled in a large, public university were randomly assigned to read one of the four scenarios, after which they completed the pilot instrument. Ninety-three percent of these participants reported current, active use of social media, such as Facebook and Twitter. A full statistical analysis was not conducted on these pilot data, but preliminary exploration indicated that the independent variables (message source and message reliability) were producing interesting, distinct, and significant effects on intent to comply with a food recall message and that the instrument was ready to be submitted to a representative consumer panel.

An explicit manipulation check was not done on the pilot or main experiment data, following O’Keefe (2003), who stated “. . .when the research question concerns the effect of a message variation on a persuasive outcome, no message manipulation check is required. The investigator will naturally want to be careful in creating the experimental messages, but the adequacy of the manipulation of the message property is not appropriately assessed by inquiring about participant perceptions of the message” (p. 257).

2.2. Administration of the instrument to a national consumer panel

The online commercial survey organization eRewards was contracted to recruit a consumer panel according to the experimenter’s instructions. To participate in eRewards, a person signs up and receives occasional emails requesting participation in studies depending on whether he or she meets the specific demographic requests of an investigator. For example, investigators can specify the number of participants or limit their studies to participants who use a certain class of products, have a certain level of household income, and so forth. Emailed participants sign in on a first-come first-served basis, and receive discounts and other rewards for their participation. The only specification submitted by the current investigator is that the 400-person panel be as nationally representative as possible.

The consumer panel for this study consisted of 400 participants, of whom 222 (55.5 percent) were male and 178 (44.5 percent) were female. The participants’ ages ranged from 18 to 82 years, with an average age of 42 years. Participants were divided into age cohorts using categories provided by the U.S. Census (Hobbs & Stoops, 2002). Thirty-eight participants (9.5 percent) were born before 1945 (Baby Bust), 125 (31.3 percent) were categorized as Baby Boomers (1946–1964), 86 (21.5 percent) were in Generation X (1965–1976), and 151 (37.8 percent) were Echo Boomers (1977–1992).

Two hundred sixty-one panel participants (65.25 percent) reported active, current participation in social media.

The eRewards software provides the ability to randomly assign incoming participants to one of the four scenarios. After reading the assigned scenario, all participants completed the same questionnaire.

2.3. Data analysis

All data were analyzed using SPSS 19. Where appropriate, bootstrapping using the default of 1000 bootstrap samples was used.

3. Results

The results reported in this section refer to the final results from the national consumer panel.

3.1. Age and social media use

Social media participation was not equally likely across the U.S. Census age groups, $X^2 = 40.069$, $d.f. = 3$, $p < .001$. Social media participation increased from 37 percent in the Baby Bust group to 52 percent in Boomers, 70 percent in Generation X, and up to 81 percent among the Echo Boomers.

3.2. Intent as a function of message source and message reliability

Cronbach’s standardized alpha for the three Likert scale measures of intention to comply with a food recall message was .877, which exceeds the typical criterion of .7, so all three items were summed to form a single Intent dependent variable for analysis. The means and standard deviations of Intent by Message Source/Message Reliability scenario are shown in Table 1.

Table 1

Descriptive statistics for intent by treatment group.

Group	Mean	Standard deviation
Organizational—Confirmed	11.44	5.73
Organizational—Unconfirmed	11.60	5.84
User-generated—Confirmed	10.66	5.32
User-generated—Unconfirmed	9.47	5.33

Table 2

Intent as a function of source and reliability of message.

Source	SS	d.f.	MS	F	p	ES
Between treatments	283.79	3	94.60	3.059	.028	.023
Source	211.70	1	211.70	6.847	.009	.017
Reliability	26.52	1	26.52	.858	.355	.002
Source × Reliability	45.56	1	45.56	1.474	.226	.004
Within treatments	12243.99	396	30.92			
Total	82303.00	400				

Data were screened to ensure that the assumptions of ANOVA were fulfilled (Mertler & Vannatta, 2005). A one-way ANOVA comparing intent as a function of scenario was conducted. Results indicated that intent to comply with the food recall message differed significantly as a function of scenario, $F(3, 396) = 3.059, p < .05$. Bonferroni's post hoc test was conducted to determine which scenarios produced significantly different intent. Results revealed that intent did not differ significantly between participants viewing the Organizational–Confirmed, Organizational–Unconfirmed, and User-generated–Confirmed messages, but that the group viewing the User-generated–Unconfirmed message showed a significantly lower intention to comply.

These results implied the possibility of an interaction between message source and message reliability. To investigate this possibility, data were screened and a univariate ANOVA was conducted; a summary of the results is presented in Table 2. Main effect results revealed that intent to comply with a food recall message was significantly different between organizational and user-generated sources, $F(1, 396) = 6.847, p < .01$, partial $\eta^2 = .017$. Estimates of effect size revealed low strength in associations. Neither the main effect of message reliability nor the interaction between message source and message reliability were significant.

3.3. Social media use and message source

To investigate the effects of participation in social media on the intent to comply with a food recall message communicated via organizational or user-generated sources, participants were divided on the basis of their self-reported participation in social media. Data were screened and a univariate ANOVA was conducted for each group (participants and non-participants in social media). The main effect of message source remained significant among participants reporting no participation in social media, $F(1, 135) = 6.727, p < .01$, partial $\eta^2 = .047$. For participants reporting participation in social media, however, the main effect of message source was no longer significant, $F(1, 257) = 2.086, p = .150$. In other words, the participants using social media responded with the same intent to comply with messages from organizational and user-generated sources.

3.4. Age cohort and response to message source and reliability

Because social media use was significantly different across age cohorts, and the previous analysis showed that social media use influenced responses to the message source, a further examination of the effects of age cohort on intent to comply was conducted. The message source data were split into organizational and user-generated sources, data were screened, and a one-way ANOVA was conducted with cohort as the independent variable and intent to comply with the food recall message as the dependent variable. Cohorts consisted of bins based on the U.S. Census definitions discussed previously. As shown in Fig. 1, age cohort did not have a significant effect on intent to comply when the recall message was communicated by an organizational source, $F(3, 196) = .107, p = .956$. However, when the message was communicated by a user-generated source, a significant linear relationship between cohort and intent was observed, $F(1, 196) = 6.97, p < .01$. Younger cohorts

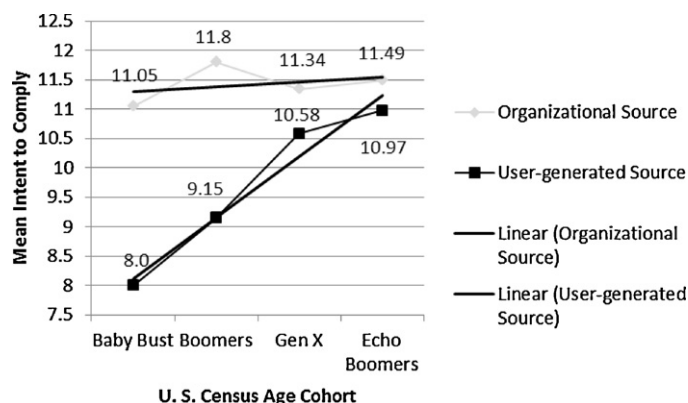


Fig. 1. Age cohorts responded to organizational messages with equal intent to comply. However, a significant linear relationship showed that older cohorts reported much less intent to comply with user-generated messages than did younger cohorts.

were much more likely than older cohorts to state that they would comply with a food recall message communicated by a user-generated source.

4. Discussion and conclusions

The results of this analysis allow us to draw a number of conclusions about the ability to predict compliance with a food recall message that appears in an organizational or user-generated source.

4.1. Effects of message source on intention to comply

One of the goals of this study was to observe whether message source (organizational or user-generated) would affect a receiver's intention to comply with a food recall recommendation. The results showed that intention to comply with the message was greater when it originated in an organizational source (i.e. the CDC) than when it originated in a user-generated source (i.e. link to a blog post shared on Facebook). The overall superiority of organizational messages in producing intention to comply is consistent with the existing food-related crisis communication literature. People are typically more compliant with food safety messages originating with government agencies and organizations (Williams & Hammitt, 2001).

All age groups responded similarly to the food recall message communicated by the organizational source. Members of Gen X and the Echo Boomer cohorts did not appear to respond differently to messages in organizational and user-generated sources, but the older Boomers and Baby Busters did make a distinction, showing greater intent in response to receiving messages from an organizational source. It is likely that the majority of the main effect of message source on intent can be traced back to these older cohorts and their lack of participation in and familiarity with user-generated content.

4.2. Effects of message reliability

Next, this study asked whether messages that were confirmed had the same impact on intention to comply as messages that had not yet been confirmed. Results showed no statistically significant differences between these two conditions.

Researchers are often discouraged when a particular manipulation fails to produce a statistically significant effect, but frequently, evidence supporting the null hypothesis can be much more interesting and useful, as it is in this case. Logically, professionals might assume that publics would fail to respond to a food recall message that lacked confirmation. This could lead to unnecessary hesitation in communicating a message while all the facts of the case are gathered. At the same time, professionals might experience an inaccurate sense of invincibility when faced with unconfirmed messages or rumors if they have the mistaken impression that unconfirmed messages are unlikely to impact intention to comply. Instead, the results of this experiment indicate that publics very quickly blur any distinctions between “we think we might have a problem,” and “we know we have a problem,” and intend to behave similarly in response to both types of message. This leads to significant concerns regarding the viral spread of misinformation during a crisis which must be considered in a crisis management plan.

4.3. Interactions between message source and message reliability

Finally, this study asked whether message source and message reliability might form significant interactions.

Although the interaction between message source and reliability in this experiment fell just short of statistical significance, the post hoc testing following the initial overall ANOVA (intent as a function of scenario) identified an interesting effect that is worthy of further investigation. The message source did not produce significant differences in intention to comply when the information was confirmed; however, when the participants were presented with the scenarios in which the information was not confirmed, intention to comply was higher in response to the organizational source than to the user-generated source of information. It is logical to assume that user-generated information would be held to a higher standard before a person would act on it.

4.4. Implications for practice in public relations and crisis communications

Public relations professionals and crisis communicators need to understand the rapidly changing demographics of social media use, and tailor their sources of information to the target audience segments. Although user-generated sources would appear to be a poor choice for sending a food recall message to seniors, at least today, user-generated messages could be very effective in reaching Echo Boomers. In other words, a single type of source is unlikely to be adequate or efficient for reaching all affected publics. Constant monitoring of age cohorts' use of social media by researchers should assist professionals seeking to reach the most people in the shortest amount of time.

Surprisingly, participants showed the same levels of intent to comply regardless of whether information is confirmed or unconfirmed. In a food safety crisis, this result implies that it is not necessary to gather complete information before communicating a problem to the public. If there is a reason to believe that the public is in danger, a message stating that “we think there is a problem” and requests that the public regularly check back for further information is likely to elicit significant compliance. The risk in “speaking too soon,” of course, is that of damaging an industry needlessly, if further study indicates that a problem is due to other than a wide-scale contamination of a food item. In addition, regular food safety crisis

messages that turn out to be unnecessary could further the public's skepticism. Appearing to “cry wolf” could jeopardize public safety when a true crisis emerges.

These results also sound a cautionary note to professionals developing crisis management plans. The possibility that unconfirmed information will carry the same weight as official, confirmed information leaves organizations quite vulnerable to rumor and misunderstanding.

5. Limitations and future research

The use of consumer panels provides an appropriate sample of the population in investigations of social media effects. Nonetheless, limitations to using consumer panels for research studies remain. Although the researchers could specify certain attributes of participants, eRewards was responsible for recruiting and selection. The researchers wished to have equal numbers of males and females, for example, but eRewards provided a 55:45 percent split. In addition, by definition, participants recruited by eRewards represent Internet users only, and very likely represent more skilled Internet users when compared to the general population.

A major extension of this research would be to further understanding of audience segmentation relevant to the use of social media and the persuasive power of social media. How will age, education, and other demographic variables combine and interact to predict audience response to social media messages over time? Future research should also move past intention to actual behavior. Given the frequency of food crises, it is feasible to use a participant's past responses to food recall messages as a baseline for estimating compliance. Past behavior in similar situations serves as a strong predictor for intent (Ajzen, 1991, 2002). Additional research could include past behavior in a food recall situation, which would provide important insights into the relationships between intent and actual behavior.

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