National Center for Risk and Economic Analysis of Terrorism Events  
University of Southern California

Instructional Strategies for Tailoring Risk Communication Messaging  
October 2012 to September 2013

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Department of Homeland Security

December 31, 2013
ABOUT CREATE

Now in its tenth year of operation, the National Center for Risk and Economic Analysis of Terrorism Events (CREATE) was the first university-based Center of Excellence (COE) funded by University Programs of the Science and Technology (S&T) Directorate of the Department of Homeland Security (DHS). CREATE started operations in March of 2004 and has since been joined by additional DHS centers. Like other COEs, CREATE contributes university-based research to make the Nation safer by taking a longer-term view of scientific innovations and breakthroughs and by developing the future intellectual leaders in homeland security.

CREATE’s mission is to improve our Nation’s security through research and development of advanced models and tools to evaluate risks, costs and consequences of terrorism and natural and man-made hazards and to guide economically viable investments in homeland security. We are accomplishing our mission through an integrated program of research, education and outreach that is designed to inform and support decisions faced by elected officials and governmental employees at the national, state, and local levels. We are also working with private industry, both to leverage the investments being made by the Department of Homeland Security in these organizations, and to facilitate the transition of research toward meeting the security needs of our nation.

CREATE employs an interdisciplinary approach merging engineers, economists, decision scientists, and system modelers in a program that integrates research, education and outreach. This approach encourages creative discovery by employing the intellectual power of the American university system to solve some of the country’s most pressing problems. The Center is the lead institution where researchers from around the country come to assist in the national effort to improve homeland security through analysis and modeling of threats. The Center treats the subject of homeland security with the urgency that it deserves, with one of its key goals being producing rapid results, leveraging existing resources so that benefits accrue to our nation as quickly as possible.

By the nature of the research in risk, economics, and operations, CREATE serves the need of many agencies at the DHS, including the Transportation Security Administration, Customs and Border Protection, Immigration and Customs Enforcement, FEMA and the US Coast Guard. In addition, CREATE has developed relationships with clients in the Offices of National Protection and Programs, Intelligence and Analysis, the Domestic Nuclear Detection Office and many State and Local government agencies. CREATE faculty and students take both the long-term view of how to reduce terrorism risk through fundamental research, and the near-term view of improving the cost-effectiveness of counter-terrorism policies and investments through applied research.

In 2011, the University of Southern California (USC) and a team of 23 partner institutions were awarded a new 5-year Cooperative Agreement resulting from a recompetition of the Center’s charter. This annual report covers the third year under Cooperative Agreement 2010-ST-061-RE0001, the ninth year overall of CREATE’s DHS funding, from October 2012 to September 2013.
1. Executive Summary

The majority of crisis communication research has focused on messages delivered in response to crises (Sellnow & Seeger, 2013). Although post-crisis communication is influential, this study focuses on the potential for instructional messages, delivered prior to a crisis, to influence both perceived self-efficacy (ability to protect oneself) during a crisis and to expedite the return of confidence in government agencies such as DHS to protect the public. As a means of addressing variance of audience needs, recent scholarship has bridged instructional and inoculation communication research with risk communication. In combination, the principles from these three areas of research allow us to provide messages before a crisis that have the potential to enhance the audience’s perceived ability to respond and confidence that government agencies can help the nation to quickly recover when facing a crisis. Through ongoing message testing procedures, our research focused on instructional or informative communication providing an inoculating or two-sided persuasion messages. Our previous CREATE research in 2011-2012 indicated that messages, delivered before a crisis and at the onset of a crisis recovery period, have the potential for diminishing loss of confidence in government agencies or in expediting the recovery of confidence for these agencies.

The overall objectives of this study were to: (a) provide an assessment of current best practices for crisis communication. This focus included assessing the potential for a shift in focus from post-crisis to pre-crisis message design; (b) Test the effectiveness of two primary best practices ("accepting uncertainty," and "self-protection") particularly as components of inoculation messages; (c) produce the basis for ultimately developing a “playbook” of message strategies to be employed prior to a crisis that may inoculate the public against a loss of confidence.

Our findings in 2012-2013 are consistent with those of 2011-2012. Inoculation messages prior to a crisis event combined with instructional messages during an event enhance resilience in the minds of audiences. Those who received the inoculation message regained confidence in their community’s safety and in agencies such as DHS or TSA more quickly than those who did not receive these pre-crisis messages. This study also revealed the unanticipated opportunity to survey the American public about their informational needs and preferred sources of information shortly after the Boston Marathon bombing. These patterns of information consumption contribute notably to our efforts to determine the best practices for crisis communication.

In this study we worked closely with CREATE investigators Dr. William Burns and Dr. Paul Slovic. Their expertise was invaluable in completing all aspects of the study and this report.
2. Research Accomplishments

Our primary objective in 2012 was to complete a longitudinal experiment measuring subject confidence about the ability of DHS and TSA to execute their missions before an event, immediately after a simulated event, and again one week later. The group offered guidance and consultation to Burns, Slovic, John, Rosoff, Rose, Avetisyan, and Chan as they engaged in a series of measures focusing on public response to disasters. Specifically, we offered advice and research expertise in designing a study moving from baseline measures, to an inoculation (two-sided persuasion) message, to a simulated disaster, followed by several subsequent interval measures of consumer confidence.

While this study was underway, the Boston Marathon bombing occurred. This tragic event allowed us to immediately expand national survey and adapt our study design to include informational needs for uncertainty reduction and self-protection after an actual terrorist attack. These results give us the most current understanding available about informational needs in response to terrorist events.

As Table 1 indicates, the most frequently asked question asked whether or not terrorists caused the event. Our assumption is that, if terrorism is at the heart of a crisis, there is a larger threat to others in the United States. Hence, these results offer further evidence that, particularly in the case of terrorism, early messages from government agencies should reflect the source of the attack. A Failure to do so is likely to produce a vacuum of information that will be filled quickly with rumors (Serra, 2011). A clear majority of the respondents also wanted to know about rescue operations and the impending government response. Obviously, within 24 hours, much is unknown about the source of the attack and the impending response strategy. Still, our previous research and the initial findings of this study, explained in the Burns et al. report, indicate that inoculation messages including reference to the fact that an agency is well prepared to respond and has the resources to do so, can reduce some of uncertainty and angst felt by the public during a crisis. Thus, the inoculation approach we have explored in the past two years appears to match well with the initial informational needs expressed by respondents in the wake of an actual terrorist event.

Table 1: Information Sought during first 24 hours of the Boston Marathon Bombing

<table>
<thead>
<tr>
<th>Information seeking question</th>
<th>Percentage on April 16, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is it terrorism?</td>
<td>86.2%</td>
</tr>
<tr>
<td>How are rescue operations going?</td>
<td>81.8%</td>
</tr>
<tr>
<td>What is the government response?</td>
<td>76.9%</td>
</tr>
</tbody>
</table>

Table 2 reveals a novel finding. In our previous surveys completed in response to major crises consistently that television was the most common source of information. This is the first event where the category “Internet” was more common than traditional media, particularly television. This finding emphasizes the importance of utilizing both
traditional and new media in a crisis response. Increasing Internet use also suggests that inoculation messages could be delivered through this general medium.

Table 2: Sources/Mediums of Immediate Information

<table>
<thead>
<tr>
<th>Medium</th>
<th>Percentage on April 16, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>78.4%</td>
</tr>
<tr>
<td>Television</td>
<td>71.9%</td>
</tr>
<tr>
<td>Friends</td>
<td>29.9%</td>
</tr>
<tr>
<td>Facebook</td>
<td>21.2%</td>
</tr>
<tr>
<td>Radio</td>
<td>16.4%</td>
</tr>
<tr>
<td>Twitter</td>
<td>10.1%</td>
</tr>
</tbody>
</table>

Another important observation is the combined influence of interpersonal communication. Contacts on Facebook and Friends were the third and fourth most popular sources of information within 24 hours. Pfau et al. (2008) observed that such interpersonal face-to-face encounters and networks could bolster inoculation messages. The fact that interpersonal communication played such a prominent role in information seeking within 24 hours of this terrorist event suggests that further research exploring the link between interpersonal communication and inoculation related to crisis in general and terrorism specifically is needed.

3.1 Publications and Reports

CREATE PUBLICATIONS

Sellnow, Timothy - University of Kentucky


3.2 Presentations

We have presented our findings and engaged in discussions about our risk communication recommendations with such agencies as the Department of Homeland Security, Centers for Disease Control and Prevention, National Academy of Sciences, Southern California Earthquake Center, United States Geological Survey, National Oceanic and Atmospheric Administration, the United States Department of Agriculture, Transportation Security Administration, and the World Health Organization. In all of these interactions, research funded by CREATE, NCFPD, and START for risk communication projects was emphasized.

Examples of presentations where segments of our CREATE research was presented to end-users include:


3. Research Transition
   3.1. Applied Relevance

Based on our 2013 study in collaborating with Burns, Slovic, John, Rosoff, Rose, Avetisyan, and Chan, we can refine the recommendations for practitioners we have established with previous research. These recommendations do not require new forms of public engagement for risk communicators. Rather, the strategies discussed below can be inserted into standard or routine forms of communication such as annual statements, press conferences, or media interviews.

1. We have further support for our recommendations, established in our 2011-2012 CREATE project, that risk communication practitioners can benefit from:
   - Incorporate “success stories” to balance discussion of challenges or failures.
   - Routinely incorporate two-sided persuasion into public conversation at all levels.
     - Press Conferences
     - Communication Campaigns
     - Public Interviews

2. We now have further evidence for expanding the relevance of inoculations in applications of the best practices for risk and crisis communication:
   The post-Boston bombing study reveals that we need to devote more time to considering interpersonal avenues of communication. This observation indicates that we should further consider the best practice of acknowledging public concern, established by previous NCFPD research. This best practice encourages risk communicators to take public concern into account whether or not the relevant agency’s leadership believes the concerns are warranted by data. The patterns of interpersonal interaction that occurred within 24 hours of the Boston bombing suggest that any failure to account for such concern could be extremely detrimental to the risk communication process. Further research into the potential opportunities for inoculation or two-sided persuasion strategies to reduce unwarranted or detrimental fear is needed.

3. We intend to continue message testing to determine the feasibility of inoculation messages to positively influence the interpersonal interaction following a crisis event. The considerable dependence on the Internet for information seeking and interpersonal interaction immediately following a crisis also warrants further consideration. Ideally, research that evaluates the potential for interpersonal interaction including both face-to-face and social media contact to influence inoculation messages should be evaluated.
3.2. Collaborative Projects

Rather than duplicating survey efforts, this project is designed to interface directly with CREATE’s proposed nationwide data panel (see Burns, Slovic, John, Rosoff, Rose, Avetisyan, and Chan) to be shared across the Risk Perception and Communication theme area. Specifically, this study adds the potential impact of message tailoring to William Burns’ efforts to understand both the long-term and short-term impact of crises on decision-making by U.S. residents.

The study also builds on a collaborative effort among three DHS centers of excellence: CREATE, the National Consortium for the Study of Terrorism and Responses to Terrorism (START) and the National Center for Food Protection and Defense (NCFPD). The project involves identifying and testing a series of best practices for risk and crisis communication that can be provided to risk communication practitioners for use in a wide variety high risk and crisis situations.

### 4. Education

<table>
<thead>
<tr>
<th>Education Initiatives (Please detail below)</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td># of students supported (funded by CREATE)</td>
<td>1</td>
</tr>
<tr>
<td># of students involved (funded by CREATE + any other programs)</td>
<td>1</td>
</tr>
<tr>
<td># of students graduated</td>
<td>1</td>
</tr>
<tr>
<td># of student theses or dissertations</td>
<td>1</td>
</tr>
<tr>
<td># of contacts with DHS, other Federal agencies, or State/Local (committees)</td>
<td>3</td>
</tr>
<tr>
<td># of existing courses modified with new material</td>
<td>1</td>
</tr>
<tr>
<td># of new courses developed</td>
<td>0</td>
</tr>
<tr>
<td># of new certificate programs developed</td>
<td>1</td>
</tr>
<tr>
<td># of new degree programs developed</td>
<td>0</td>
</tr>
</tbody>
</table>

Research Assistants: Elizabeth Petrun, Ph.D. in Risk Communication

Masters and Certificate Programs: Graduate Certificate in Risk Sciences, College of Communication and Information, University of Kentucky

University Courses: CJT 721: Doctoral Seminar in Advanced Risk Communication

### 5. Outreach

<table>
<thead>
<tr>
<th>Outreach Initiatives</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td># of memberships in major DHS-related Committees</td>
<td>0</td>
</tr>
<tr>
<td># of contacts with DHS</td>
<td>3</td>
</tr>
<tr>
<td># of contacts with other Federal agencies, or State/Local (committees)</td>
<td>8</td>
</tr>
<tr>
<td># of contacts with State/Local (committees)</td>
<td>2</td>
</tr>
<tr>
<td># of Workshops and Events</td>
<td>1</td>
</tr>
<tr>
<td># of media events</td>
<td>2</td>
</tr>
</tbody>
</table>
We shared our research this year at two brownbag events sponsored by the Department of Homeland Security in Washington, D.C.

We consulted directly with the Transportation Security Agency on two occasions in Washington, D.C.

Members of the research team are actively involved in revising the risk communication strategies employed by the Lexington, KY fire department.

Members of the research team shared portions of our findings at a session sponsored by the National Conference on Science, Policy and the Environment.

Members of the research team shared portions of our findings at a session sponsored by the World Health Organization, hosted by the United States Centers for Disease Control and Prevention.

We have applied our findings to research underway for the United States Geological Survey.

We have incorporated our findings into research underway with two other DHS centers of excellence: NCFPD and START.

We have participated in discussions that included research from this project with the National Academy of Sciences.

References

