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# COMMUNICATION DESIGN FOR DISASTER RESPONSE

Texas A&M Engineering Summer Institute  
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What is the difference between  
information and meaning?



# THE CONDUIT METAPHOR



# WARNINGS

## Clear, Calm, Collected

Communicating Effectively During Times of Threat

ELAINE VAUGHAN, HAMILTON BEAN, KATHLEEN SMARICK & DENNIS MILETI

One of the defining characteristics of terrorism is that it is intended to impact—directly or indirectly—the public at large. As a result, the public needs and wants information about the threat and risk posed by potential or actual attacks. Ensuring that such information is conveyed effectively and spurs appropriate protective action is essential to the successful management of crisis situations. Are guidelines for effective communication during times of threat being followed in U.S. communities?

Study #1: Bean, Mileti and Smarick

**METHODOLOGY** Researchers conducted a survey of more than 500 people in Los Angeles County who had experienced a major wildfire to assess the types of warnings residents had received. In addition, researchers conducted 70 interviews with public information officers in and around the New York City, Los Angeles and Washington, D.C., regions designed to assess the degree to which best risk communication practices were being followed in U.S. communities.

**RESULTS** Surveys revealed that 35% of residents who received a mandatory evacuation order during a major wildfire never evacuated their homes. Those who did evacuate reported that they received the evacuation order from a source they knew and trusted; they received multiple messages through a variety of channels; and the information they received was specific about what action they needed to take and when. These findings reinforce the long history of research on effective communication of warnings.

Interviews with public information officers, however, revealed that knowledge of and attention to these factors associated with successful warnings varies greatly, even in areas considered to be likely targets for mass-casualty terrorism. Few officials had any experience in composing messages for large-scale disasters that would require the public to take action. Less than half indicated that they have or would use pre-scripted messages—messages specifically crafted to prompt public action—during an emer-

gency event. Interviews also revealed a general lack of awareness as to how diverse sectors of a population interpret uniform official messages.

Study #2: Vaughan

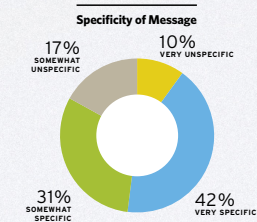
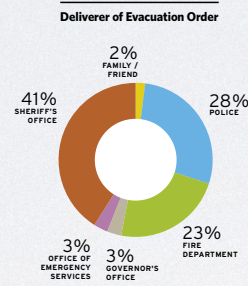
**METHODOLOGY** START sought to improve understanding of how diverse U.S. audiences respond to threat information. Researchers presented broadcast media stories from the 2001 anthrax attacks to members of minority communities and, through interviews and focus groups, identified how communication needs differed among participants from various ethnic and socioeconomic groups.

**RESULTS** Focus groups with representatives from minority communities reinforced the need for officials to know and adapt to their audience. Within some lower-income African-American and Hispanic communities, for instance, premature public reassurances severely damaged the short-term credibility of public officials. These audiences were more forgiving of warnings about threats that never materialized. Conversely, skepticism among those who mistrust the government was reduced when officials offered repeated and clear communications about what was known about the situation, while openly acknowledging existing distrust of the messenger and messages.

**BOTTOM LINE** Communities recognize that effective public communication in the midst of a crisis, such as a terrorist attack, can mitigate its negative consequences. To ensure that messages about warnings, threats and risk effectively convey information to prompt appropriate action, officials need to heed established principles of effective communication and also adapt their messages and channels of communication to the diverse populations and life circumstances in their communities.

► FOR MORE INFORMATION ON THESE PROJECTS, VISIT: [WWW.START.UMD.EDU/RR11/PROJ12](http://WWW.START.UMD.EDU/RR11/PROJ12) AND [WWW.START.UMD.EDU/RR11/PROJ13](http://WWW.START.UMD.EDU/RR11/PROJ13).

### RESULTS FROM LOS ANGELES COUNTY SURVEY ON COMMUNICATION DURING WILDFIRES



Are explicit efforts made to reach special populations (including non-English speakers, low-income and special needs)?

Efforts are made to reach special populations.

	Yes	No	DK
	72%	23%	5%

### Are steps taken in advance of a disaster to ensure that warning providers are prepared to issue messages effectively?

	Yes	No	DK
Standard operating procedures (SOPs) are written down.	66%	31%	3%
Warning thresholds are in place.	28	63	9
SOP training is conducted.	76	23	1
Exercises and/or scenarios are conducted.	76	24	0
Succession planning is detailed within SOPs.	89	10	1
Shifts in responsibility are identified.	80	17	3

UNANTICIPATED RESPONSES ARE LIKELY TO OCCUR.

MULTIPLE CRISIS COMMUNICATORS ARE NEEDED TO PROVIDE ACCURATE AND TIMELY INFORMATION.

REASSURANCES MAY BE RE-INTERPRETED AS A SIGNAL THAT INFORMATION IS BEING IGNORED.

ADDRESS COMMUNICATION ERRORS IN A TIMELY MANNER.

INFORM THE PUBLIC ABOUT UNCERTAINTIES.

### How do warning providers evaluate their efforts?

	Yes	No	DK
An after action report.	81%	12%	7%
Public feedback is formally sought and collected.	23	74	3
Public feedback influences subsequent operations.	42	49	9

Are efforts made to ensure the effectiveness of warning messages?

	Yes	No	DK
Pre-scripted and pre-vetted messages are used.	53%	44%	3%
Pre-event public warning education is provided.	71	23	6



	Preperation/ Pre-Crisis	Response	Recovery/ Post-Crisis
Messages	<b>warning messages</b>		
Conversations	individual decision making, diffusion through face-to-face interaction		
Systems/ Networks	social networks		
Discourse	competing frameworks for the creation and evaluation of warning messages		



	Preperation/ Pre-Crisis	Response	Recovery/ Post-Crisis
Messages	data-driven information transfer, persuasive strategies		
Conversations	resource allocation decision-making, convincing evacuees		
Systems/ Networks	<b>evacuee and patient tracking</b>		
Discourse	logics of safety, security, and privacy		



# COMMUNICATION DESIGN

"The immediate product of design is some **intervention** into ongoing activity (e.g., **a device, a service, an interactional format**) that might or might not affect the activity in the way the design expects. The design of information and communication technology is grounded in some idea about how communication works and ought to work."

*Aakhus and Jackson, 2005*

"...make communication possible that was once difficult, impossible or unimagined. Communication design happens when there is an intervention into some ongoing activity through the invention of **techniques, devices, and procedures** that aim to redesign interactivity and thus shape the possibilities for communication."

*Aakhus, 2007*



# COMMUNICATION DESIGN METHODOLOGY

- “empirical examination of discourse practices,
- critical analysis based on comparison of practices with an ideal model,
- a specification of designable features,
- a proposed redesign,
- examination of the change in practice that follows from implementation of the design” (Jackson, 2002, p. 110).



# NUCLEAR POWER SAFETY OVERSIGHT MEETINGS



## **Journal of Applied Communication Research**

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rjac20>

## **Designing Communication for the Day-to-Day Safety Oversight of Nuclear Power Plants**

Joshua B. Barbour & Rebecca Gill

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**To link to this article:** <http://dx.doi.org/10.1080/00909882.2013.859291>



# **STATUS MEETINGS**

GET THE FACTS

GET THE RIGHT INFORMATION  
TO THE RIGHT PEOPLE AT THE  
RIGHT TIME



	Preperation/ Pre-Crisis	Response	Recovery/ Post-Crisis
Messages	getting information/facts correct and transmitted		
Conversations	<b>safety oversight meetings</b>		
Systems/ Networks	multiple, overlapping communication processes		
Discourse	tenor of safety oversight as a whole		



# STATUS MEETINGS

- Safety: Are we in danger? how do we know?
- Information management: *Get the right information to the right people at the right time*
- Meaning engagement practice: What does this mean for safety?
- Regulation: What should the regulatory action be?
- Learning: do we agree about what we are doing and do we all know how we are doing it?
- Value: Is it clear that our inspection work helps make the plants safer?



# DESIGNABLE FEATURES

- What to communicate and how much?
- How to communicate?
  - Turn taking
  - Timing and pacing
- Who are the audiences?



# SITUATED IDEALS

transmit information and make meaning

deal with ambiguity concretely

make status meetings boring and interesting

focus on the past and the present



# PROPOSED REDESIGN

- Awareness and Reflexivity
- Storytelling
- Systematic experimentation



# RELATED PROJECTS

- \* Sophistication and **message design logics** in stakeholder message creation about organizational change (Barbour, Jacocks, Wesner, 2013)
- \* Collaboration for compliance: Negotiation of **identity tensions** at a toxic waste storage site (James & Barbour, R&R)
- \* **Institutionalized accounts** of volunteer responder preparedness (Chinn & Barbour, 2013, Barbour & Chinn, in preparation)
- \* Hazards materials response **knowledge networks and transactive memory systems** (Barbour & Bierling; Sommer, Barbour, & Bierling)
- \* App design to **educate community members** about the effects of their local adoption of low impact development technologies (Scott, White, Politte, Collard, Saathoff, Baltensperger, Bergman, Barbour, Sprintston, 2014)

[macromorphic.com/pubs](http://macromorphic.com/pubs)



	Preperation/ Pre-Crisis	Response	Recovery/ Post-Crisis
Messages	flooding and development education messaging		
Conversations	safety oversight meetings		
Systems/ Networks	transactive memory systems, post disaster interorganizational networks		
Discourse	disaster policy rhetoric		



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