



# The Roles of Social & Mobile Media in Community Response & Recovery

Brooke Liu, Ph.D.

Associate Professor of Communication & Director of the Risk Communication &  
Resilience Program, START

Copyright © 2014, University of Maryland, All Rights  
Reserved

# Introduction to START

Research Portfolio

**START** NATIONAL CONSORTIUM FOR THE STUDY OF TERRORISM AND RESPONSES TO TERRORISM

**Terrorism and Violent Extremism**

- Individual Behavior
- Violent Groups and Movements
- Terrorism and Society
- Crime and Terrorism

**Counterterrorism and Counteracting Violent Extremism**

- Counterterrorism
- Countering Violent Extremism

**Risk Communication and Resilience**

- Risk and Crisis Communication
- Community Resilience
- Emergency Preparedness and Management
- Training

**Radicalization and Deradicalization**

- Radical Beliefs and Behavior
- Deradicalization
- Disengagement

**Unconventional Weapons and Technology**

- Chemical and Biological Threats
- Radiological and Nuclear Threats

Adversary Modeling  
 Al-Qaida and Affiliated Movements  
 Behavior  
 Chemical Threats  
 Community Resilience  
 Countering Violent Extremism (CVE)  
 Crime Communication  
 Crime and Terrorism  
 Cybersecurity and Counterterrorism  
 Deradicalization and Disengagement  
 Domestic Terrorism & Political Violence  
 Extremism  
 Emergency Preparedness and Management  
 Ethics, Conflict and Violence  
 Global Security  
 Group Behavior  
 Homeland Security Education and Training  
 Improved Explosives Detection  
 Innovation and Technology  
 Leadership in Violent Extremist Organizations  
 Left-wing Terrorism  
 Media and Terrorism  
 Natural Hazards  
 Nuclear Terrorism  
 Policing Terrorism  
 Political Instability  
 Psychology of Terrorism  
 Public Communications and Warning  
 Psychology of Terrorism  
 Qualitative Methods  
 Radioisotopes/Medical  
 Radiological Threats  
 Right-wing Terrorism  
 Risk Management  
 Security Policy  
 September 11th  
 Single-Issue Terrorism  
 Smuggling/Black Trafficking  
 Social Media  
 Statistics of Analysis  
 Terrorism and Economics  
 Terrorism Traditions and Networks  
 Terrorism Trends  
 Terrorist Organizations and Networks  
 Threat Assessment  
 Violence Adaptive and Counterterrorism  
 Weapons and Tactics

- Terrorism Studies Minor
- Graduate Certificate
- Training/Continuing Education Units



- More than 20 publicly available data sets
- Access to over 100 SMEs
- 100s of articles, thousands of HSE students trained

Emphasize transition of knowledge thru web, SME network, and education/trng  
 Cover 4 research areas and # of projects  
 Talk about placement of interns and graduates  
 BLUF – START is an investment in the current and future human capital of the HSE.

On our website you can read about 38 completed and 36 on-going research projects.  
 By category: 1. 14/10 2. 10/12 3. 8/12 4. 6/2

As part of START's mission to ensure the successful transition of students from their undergraduate experiences to professional positions in the homeland security science and technology arena (HS-STEM), the center has recently developed a two-year program called EGSI: Emerging Global Security Issues Fellowship Program. This program will provide tuition and stipends to six high-achieving undergraduates interested in social science research, terrorist, and homeland security for their final two years in a University of Maryland bachelor's degree program.

**\*\*Almost 3,000 students educated by START since 2005 including K-12 through executive and traditional and non-traditional students (Introduce our students)**

## Presentation Overview



Social

- Social media use before & during disasters



Mobile

- Mobile messaging for imminent threats



Traditional

- Journalists' perceptions of social media's value

## **Part I: Social Media Use Before & During Disasters**

## Case Study: CDC's Zombie Apocalypse Preparedness Campaign



Images source: [emergency.cdc.gov](http://emergency.cdc.gov)

Research indicates that at least half of Americans are not prepared for disasters in that they don't have emergency supplies and believe they can rely on local authorities.

Source: <http://consumer.healthday.com/mental-health-information-25/behavior-health-news-56/many-americans-not-prepared-for-disasters-poll-666756.html>

Zombies are overtaking pop culture. For example, television's zombie drama "The Walking Dead" debuted its fifth season in 2014 and is the most watched show in basic cable history. From video games such as "Zombies Ate My Neighbors," to movies such as "Resident Evil," to the "Zombies Run!" mobile app, which simulates a real-time zombie attack to provoke runners to make the best of their workouts, zombies have invaded public consciousness.

Campaign kicked off in 2011

Research conducted in 2012; replicating now with national sample

Interviewed campaign planners, reviewed CDC's internal evaluation, and conducted an experiment with college students

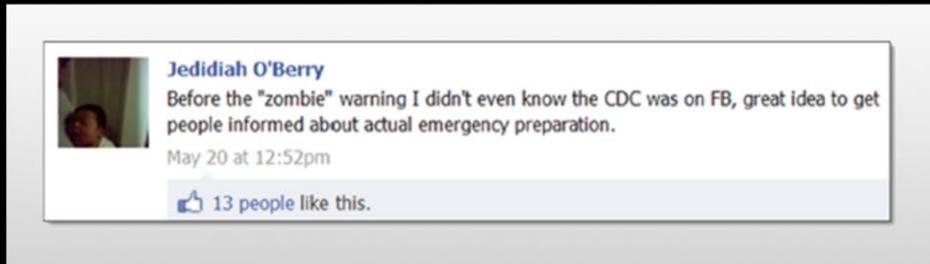
## Blog Promoted by Tweet



Image source: Twitter

<http://emergency.cdc.gov/socialmedia/zombies.asp>

## Campaign Goes Viral



*Image source: Facebook*

Exceeds **60,000 blog page views/ hour** within 3 days –  
up from about **80 blog page views/ hour prior** to the promotion

*Top 10 Trend on Twitter*

More than 3 billion total media impressions in a few months

## Picked Up by Traditional Media



*More than 3.67 billion total impressions*

*Image source: CDC campaign evaluation metric materials*

More than 3.67 billion total impressions in from traditional and social media; the CDC estimated that the equivalent cost to pay for these impressions would have been 3.34 million U.S. dollars.

**START** ➔ National Consortium for the Study of Terrorism and Responses to Terrorism

# In Australia....

The Sydney Morning Herald  
World

In case of zombie apocalypse, head for the hills, report says

March 5, 2015 Read later

Tweet 9 Share 51 Show 1 LinkedIn Share Print Submit

Email article Print

Start Download  
Commentary File to a PDF Word 4 Pages OLE DB - Free Download!

How to survive the zombie apocalypse in six easy steps

October 11, 2014 Read later

Peter Munro  
Journalist  
View more articles from Peter Munro  
Follow Peter on Twitter Email Peter

Tweet 9 Share 345 Show 0 LinkedIn Share Print Submit

Email article Print Reprints & permissions

*Image source: The Sydney Morning Herald*

**The Sydney Morning Herald (SMH)** is an Australian national [online news](#) brand. Founded in 1831 as the *Sydney Herald*, the SMH is the oldest continuously published newspaper in Australia.<sup>[2]</sup> The newspaper is published six days a week.

**Washington:** Americans living in the Rocky Mountain states such as Colorado and Utah stand a better chance of dodging a zombie apocalypse than their urban counterparts.

Cities would fall quickly, suggests the "large-scale exact stochastic dynamical simulation of a zombie outbreak" from Cornell University in New York state.

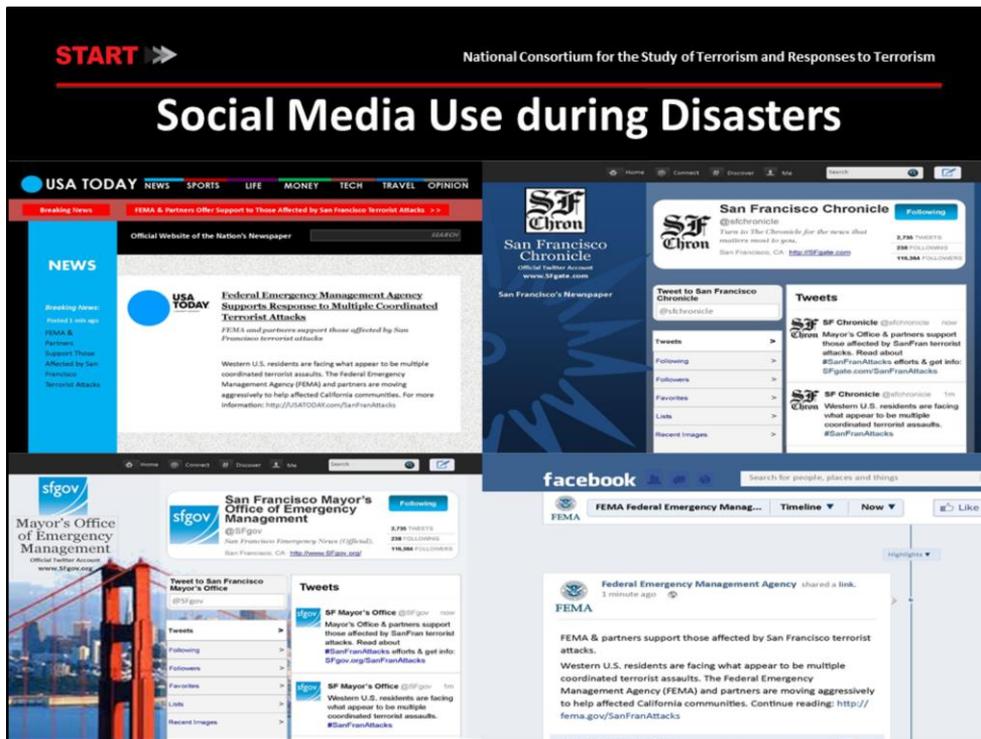
## Case Study: Key Findings

### Social Media vs. Traditional Media

- Medium is the message in other work
- No differences among groups in this study

### Humor (Zombie) vs. Non-Humor (All Hazards)

- Zombie messaging = lower intentions to: prepare a kit, make a plan, & seek further info



Fielded in May & June 2013

2,015 participants

Only tested terrorist attack

Compare campus pilot findings to national sample & identify key unanswered questions

Only tested hypothetical terrorism disaster, not fire and terrorism as did the campus pilot experiment.

# START Experiment Results



**The disaster information form (Facebook, Twitter, or website) and source (FEMA, San Francisco Mayor's Office of Emergency Management, *USA Today*, and *the San Francisco Chronicle*) alone through which participants received information about the hypothetical terrorist attack **did not uniformly impact their intended information seeking responses.** In addition, the sources of disaster information alone did not differently influence participants' reported intentions to evacuate nor their reported intentions to take any other measured recommended actions.**

**The key word here is uniformly because for we did find one significant results regarding form and information seeking: Participants who received disaster information from a national government agency reported stronger intentions to seek more disaster information from TV news than did participants who received the same information from a local newspaper.**

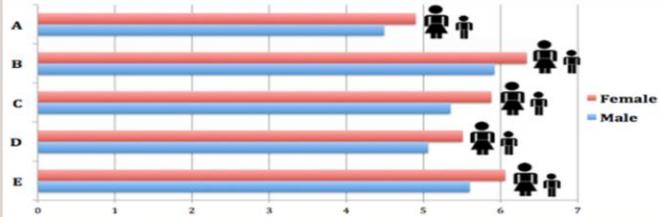
**Similarly, we found one significant result regarding information form alone: When the hypothetical terrorist attack information came from a tweet, participants were significantly more likely to report intentions to evacuate "no matter what" than when the information came from a web post.**

Across the board, however, after exposure to the hypothetical disaster information, participants reported intentions to respond predominately via interpersonal channels such as telephone calls, face-to-face conversations, texting, and emailing rather than through organizational media channels such as by "liking," "sharing," or "commenting" on a government Facebook post.

**These findings perhaps indicate that severe disasters such as terrorist attacks automatically generate increased information seeking and communication intentions regardless of in what media form how the public learns about the disaster, but there are communication opportunities for government agencies to play a key role as information source that facilitate further disaster information seeking.**

# START Experiment Results

**FEMALES vs. MALES: How likely did they say they would be TO TAKE CERTAIN PROTECTIVE ACTIONS immediately following a (hypothetical) TERRORIST ATTACK?**



- A: Evacuate from the area no matter what**
- B: Evacuate from the area if instructed to by government officials**
- C: Follow government instructions step by step**
- D: Tell others to follow government instructions**
- E: Listen for more information from government sources**

Participants in a nationally representative online field experiment were exposed to hypothetical terrorist attack information and asked to indicate their likelihood to take any of six protective actions if they were experiencing the disaster

Citation: Liu, Brooke, Julia Daisy Fraustino, and Yan Jin. "Social Media Use during Disasters: A Nationally Representative Field Experiment," Report to Homeland Security Advanced Research Projects Agency, Science and Technology Directorate, U.S. Department of Homeland Security, College Park, MD: START, 2013.

# START Experiment Results

*OLDER participants generally indicated STRONGER INTENTIONS to take a host of protective actions in comparison to their YOUNGER counterparts:*

How does AGE relate to the public's intentions to take certain PROTECTIVE ACTIONS following a (hypothetical) TERRORIST ATTACK?



Participants in a nationally representative online field experiment were exposed to hypothetical terrorist attack information and asked to indicate their likelihood to take any of six protective actions if they were experiencing the disaster.

*Citation: Liu, Brooke, Julia Daisy Fraustino, and Yan Jin. "Social Media Use during Disasters: A Nationally Representative Field Experiment." Report to Homeland Security Advanced Research Projects Agency, Science and Technology Directorate, U.S. Department of Homeland Security, College Park, MD: START, 2013.*

## **Part II:** Mobile Messaging for Imminent Threats

**content & form**

## WEA Messages

Content topics & order are set:

Hazard, **location**, **time**,  
**protective action**, **source**

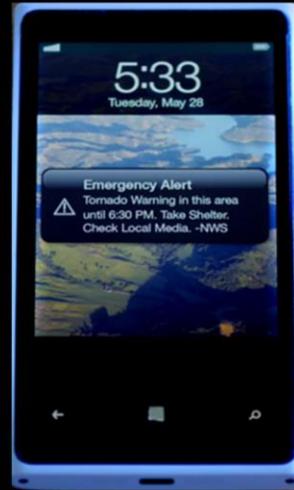


Photo credit: slate.com

Wireless companies volunteer to participate in WEA, and those participating were required to deploy WEAs by April 2012.

We have been investigating whether mobile alerts, and specifically WEAs perform differently than social media messages and more traditional forms of alerting such as the EAS system since 2012.

WEAs 90 character messages

Research has included:

Expert workshop

7 focus groups and 50 think-out-loud interviews conducted in 2012

8 experiments (2,012 participants in total) conducted in 2012

Survey of Boulder, CO community in 2013 after receiving WEAs for a severe flood (1,093 respondents)

Currently conducting additional focus groups (4) and experiments (8) to test whether expanding WEAs to 280 optimizes outcomes, as well as the potential benefits (and drawbacks) of adding maps, urls, and apps.

## How to best order content?

- Current short messages order:
  - Hazard, location, time, protective action, source
- Revised short messages order:
  - Source, protective action, hazard, location, time

## Do recommendations vary by hazard?

### Short messages (90 & 140-characters):

- Too little info to overcome pre-event hazard-specific perceptions
- More like a siren than warning

### Longer messages (1,380-characters):

- Enough info to shape public perception & event response
- Works across hazard types

## Familiarity Concerns

- WEAs



- Alert & warning concepts

Only evaluated in focus groups

### Lack of familiarity with WEAs

“And in the case of a national emergency, all of a sudden they’re going to calculate hundreds of thousands of locations to send those of us a personalized message? That’s Santa Claus [make believe].”

“I was thinking this is something we would have signed up for, I’m hoping because if this is just came on my phone, I might be a little bit, you know, think somebody’s playing a joke on me or something. But I’m hoping I signed up for this [...].”

### Lack of familiarity with alert & warning concepts

“I don’t know what shelter in place is. I mean I would assume that some buildings are safer than other buildings.”

“I would like to know, when they say ‘shelter,’ do they mean shelter-in-place in my home; go to a basement like in a tornado? Or do they mean go to an outside shelter that the city has set up?”

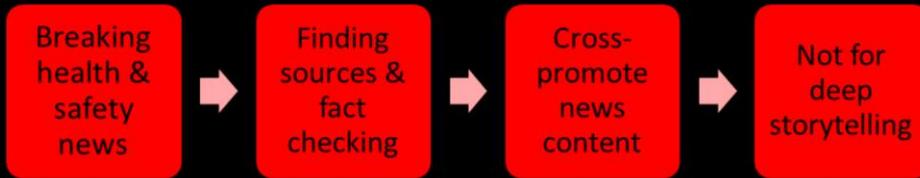
## **Do WEAs work?**

**About 1/3 of survey respondents had been checking local media, with an increase to almost 50% within 15 minutes following the 1<sup>st</sup> WEA**

## **Part III:** Journalists' Perceptions of Social Media's Value during Disasters

**content & form**

## Why use social media?



Challenge of balancing speed w/ accuracy

## Cross-Study Conclusions

Risk communication objectives

Specific audience deficiencies

Messages matter, if done well

Specific message areas to improve

Messages over medium for response

## Contact



**Brooke Liu, Ph.D.**

Associate Professor & Director of the Risk Communication &  
Resilience Stream

[bliu@umd.edu](mailto:bliu@umd.edu)

[www.start.umd.edu](http://www.start.umd.edu)