An Evaluation of the First Great Southern California ShakeOut

A report about the impact of a unique disaster-preparedness communication campaign
The Norman Lear Center

Based at the Annenberg School for Communication at the University of Southern California, the Norman Lear Center is a multidisciplinary research and public policy center exploring implications of the convergence of entertainment, commerce, and society. On campus, the Lear Center builds bridges between eleven schools whose faculty study aspects of entertainment, media and culture. Beyond campus, it bridges the gap between the entertainment industry and academia, and between them and the public. For more information, please visit www.learcenter.org or email enter@usc.edu.

Hollywood, Health & Society

Hollywood, Health & Society (HH&S) is a program at the USC Annenberg Norman Lear Center that provides entertainment industry professionals with accurate and timely information for health storylines. Funded by the Centers for Disease Control and Prevention (CDC), The Bill and Melinda Gates Foundation, The California Endowment, and the Health Resources and Services Administration’s Division of Transplantation and Poison Control Program, the program recognizes the profound impact that entertainment media have on individual knowledge and behavior. For more information, please visit www.usc.edu/hhs or email hhs@usc.edu.
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Ever since the San Francisco quake in 1906, Californians have known that they live in earthquake country. And ever since then, state and local governments, public health officials and voluntary groups have conducted disaster preparedness campaigns to help Californians get ready for an inevitable catastrophic quake. Using pamphlets, posters, school lessons, front matter in phone books, public service ads, and community based outreach, experts have tried to spread the message that the best way to survive an earthquake is to be prepared, know what to expect and have a plan.

But despite ongoing efforts to encourage households, businesses, schools, organizations and individuals to prepare, rates of preparedness have been stagnant over the past decade. In California, which is nationally the most prepared state, only 30-40% of households have sufficient disaster supplies; many have not implemented household mitigation measures; many do not know how to respond in an earthquake; and the majority of individuals and households do not have a viable family communication plan.

Over the past few years, a number of groups came to the view that something different needed to be tried. They included the City of Los Angeles, the U.S. Geological Survey, California Office of Emergency Services, California Seismic Safety Commission, Southern California Earthquake Center, California Institute of Technology, Art Center College of Design and the Norman Lear Center. The “something different” these groups decided to try was public theater, spectacle, simulation, design – something that engaged the imagination as much as the mind, something that informed and educated via participation in a disaster play, and that was promoted as much through the new online media as through the traditional media.

And so in 2006, the Norman Lear Center, whose mission is to study and shape the impact of media and entertainment on society, partnered with Art Center College of Design in its effort to develop an innovative public safety campaign. Bringing together a unique mix of designers, researchers, and earthquake experts, The Los Angeles Earthquake: Get Ready campaign sought to measurably increase earthquake preparedness throughout the Greater Los Angeles area. The Get Ready effort was designed to work in tandem with the Great Southern California ShakeOut, a series of earthquake-related events, including the largest earthquake drill in U.S. history.

After more than three years of planning, the Great Southern California ShakeOut was announced. At 10 am on November 13, 2008, there would occur the largest earthquake drill in American history. In the months leading up to it, ShakeOut organizers released media guides, PSAs, interactive games (including a quiz game called Beat the Quake) and 3-D animations, and they promoted campaign messages in print, broadcast, online and outdoor media. On the day of the ShakeOut, citizens participated in the Drill, the multiplayer simulation game called After Shock launched, and it all coincided with an International Earthquake Conference and the Golden Guardian Emergency Response Exercise.
The ShakeOut Drill was based on a realistic scenario that was intensely dramatic, and therefore more likely to incite water-cooler conversation. The scenario described a 7.8 quake that would be 5,000 times stronger than the Northridge quake, immediately causing 2,000 deaths, 50,000 injuries, and $200 billion in damage. In the aftermath of the ShakeOut, its sponsors hoped that Southern Californians would make earthquakes a topic of conversation among their friends, family, neighbors, and co-workers, and that, ultimately, they would help each other become more prepared for earthquakes.

As a partner in the Get Ready campaign, the Lear Center contributed its expertise in using media outreach and public spectacle for the purpose of civic engagement. There was good reason to believe that entertainment-education, as social scientists call it, would work. Organizations around the world have carried out massive public education campaigns using puppets, music, street theater, and great storytelling to engage diverse audiences.¹ That’s why, for Art Center’s L.A. Earthquake Sourcebook, I wrote a comic book (A River in Egypt) about earthquake denial in order to demonstrate the ability of a pop culture genre to convey a serious and useful public health message.

The Norman Lear Center has had long experience in entertainment-education. Recognizing the profound impact that entertainment media have on individual knowledge and behavior, the Lear Center’s Hollywood, Health & Society (HH&S) program provides entertainment industry professionals with accurate and timely information for health storylines. A key feature of HH&S is its evaluation of the impact of those health messages on television audiences. But the ShakeOut had no funds to arrange for an independent evaluation to be conducted, so the Lear Center applied for, and won, a grant from the innovation fund established by the Dean of the USC Annenberg School, Ernest J Wilson III.

This report describes the findings of that evaluation. Especially because the ShakeOut has become an annual and statewide event, it is our hope that these findings will provide useful information for the marketing campaign, message strategy, execution and follow-up of future ShakeOuts.

Martin Kaplan
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The Norman Lear Center’s L.A. Earthquake: Get Ready evaluation demonstrates that the Great Southern California ShakeOut was very successful at creating an abiding interest in earthquake preparedness. The campaign’s signature event, the ShakeOut Drill, used the tools of drama and theater to engage its audience in a topic that many would rather not think about. Ultimately, almost 5.5 million Southern Californians simultaneously responded to the imagined impact of a 7.8 earthquake. Schools, businesses, and government agencies across Southern California staged evacuations, search and rescue simulations, and medical triage – complete with stage make-up, fake injuries, and fast-changing disaster scenarios. The dramatic and social aspects of this event no doubt contributed to its visibility and viability as a method to mobilize personal and public action. One month after the ShakeOut, an astonishing 97% of respondents said they would participate in an annual drill. As with all self-selected survey samplings, it is advised that the results be interpreted with some caution. Respondents who chose to take the survey may be more motivated to prepare for earthquakes.

The evaluation also revealed the benefits of physical participation in the Drill. Typically, evaluations of public health campaigns assume that raising an individual’s knowledge level about a health topic will result in behavior change. Since the keystone of the ShakeOut campaign was a participation-based event (i.e., people were asked to pretend that an earthquake had taken place), we have the opportunity to find out whether a particular behavior (participation in the Drill) affected knowledge and other relevant behavior in a different manner than a more typical health or social campaign. This survey found positive associations between Drill participation and a range of other variables: respondents who performed the “Drop, Cover and Hold On” procedure at 10 am on November 13, 2008, were more likely to receive a high score on earthquake knowledge; to recall the key message of the campaign; to have practiced other aspects of their disaster plan; to have helped others to prepare for earthquakes; and to have invited others to join.

One measure for the effectiveness of an entertainment-education campaign is to find out whether people had conversations with others about the topic of the campaign. The Lear Center evaluation found that 96% of respondents who signed up had a conversation about earthquakes within the previous 30 days. Sparking conversations was a priority for the ShakeOut campaign because communities are safer if residents can rely on their friends, families, neighbors, and colleagues to assist one another in emergency situations. Although the Drill was based upon extensive scientific evidence, the scenario itself was as entertaining and engaging as a disaster movie. Past Lear Center research demonstrates that entertainment-education campaigns are particularly effective.
The survey also demonstrated that many Southern Californians are still unprepared and they still need accurate earthquake preparedness information. One month after the Drill had taken place, one-third of those who had signed up admitted that they were still unprepared for a large-scale earthquake. While this finding may be troubling, ShakeOut participants, who were drawn from all of Southern California, demonstrate a significantly higher rate of preparedness than Angelenos surveyed in 2004. The Los Angeles County survey found that 52% reported that they did not have adequate disaster supplies and 60% did not have a family communication plan. Rates of preparedness were even lower among ethnic minority groups, persons with lower income, and persons with chronic illnesses. Indeed, a recent national study concurs with these findings and reports that people are more likely to have single-purchase items that are useful for non-emergency purposes such as flashlights than they are to have items that are specific for an emergency such as a three day supply of water.

Despite their enthusiasm and their relatively higher level of preparedness, a large majority of those surveyed exhibited confusion about proper earthquake safety procedures. Only 22% of those who signed up for the Drill could recall the key message (“Drop, Cover and Hold On”) without a prompt. Almost one in four endorsed the debunked “Triangle of Life” procedure, which involves crouching beside large pieces of furniture or walls during earthquakes, and 13% thought that getting under a doorway was something they should do during an earthquake, even though that advice is only recommended for people living in adobe homes. The confusion was likely caused by the tremendous scope of the campaign, which included over 30 institutional sponsors, supporters and organizers. The campaign included messages about the earthquake scenario, about registering and participating in the Drill, about other events that took place during ShakeOut week, in addition to messages about preparedness in general. The ShakeOut distributed multiple publications (including Putting Down Roots in Earthquake Country, Shift Happens – Secure Your Space, and Drop, Cover and Hold On!) that contained overlapping information expressed in different styles.

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The demographics of our sample demonstrated the difficulty of reaching a population as diverse as the one in Southern California. In terms of gender and race, the demographic distribution of those surveyed did not match the distribution in Southern California. Sixty-seven percent of respondents were female (compared to 50% in Southern California) and 75% were white (compared to 42%). Hispanics were vastly underrepresented (15% vs 39%), as well as Asian-Americans (7% vs 12%) and African-Americans (3% vs 7%). The 2008 ShakeOut team translated its key earthquake resources into Spanish, Chinese, Japanese, Korean, Russian, Tagalog, and Vietnamese, but this evaluation indicates that the campaign must increase its effort to reach beyond cultural and social boundaries if it intends to include all the communities of Southern California. It should also consider creating a communication campaign appealing to men, who are often less attentive to health and safety issues.

The enormity of this multimedia campaign represents a new communication paradigm that reflects contemporary social expectations and modes of behavior. These findings demonstrate the effectiveness of engaging citizens in a dramatic public event, and they provide essential baseline data for future disaster preparedness campaigns that utilize entertainment-education methods.

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5 A recent report recommends that future disaster preparedness campaigns in Southern California establish working groups with service personnel, nonprofit organizations and media outlets serving ethnic communities. A. Matthew and K. Kelly. (2008). Disaster Preparedness in Urban Immigrant Communities: Lessons Learned From Recent Catastrophic Events and Their Relevance to Latino and Asian Communities in Southern California, a Tomas Rivera Policy Institute and Asian Pacific American Legal Center Report.
Key Findings

• An astonishing 97% said that they would participate in an annual drill.

• Seventy-nine percent of those who signed up for the Drill actually participated in it on November 13, 2008.

• Compared to those who did not participate, people who physically participated in the Drill were more likely to have practiced other aspects of their disaster plan (49% vs 27%) and to have helped others in their earthquake preparations (46% vs 18%).

• Drill participants were three times more likely than non-participants to have attended a meeting about earthquake preparedness in their workplace or school (39% vs 12%).

• Physical participants in the Drill were almost three times as likely as non-participants to have played After Shock or Beat the Quake, two online games about earthquakes (14% vs 5%).
If you participated in the November 13 ShakeOut Drill, where were you?

- Work: 47%
- Home: 35%
- School: 5%
- Commercial Setting: 1%
- Public Building: 7%
- Outside: 4%

Note that respondents had to be 18 or older in order to participate in the survey, and so very few students attending K-12 schools are included in the sample.

100% Involvement in ShakeOut Activities by Drill Participation

- Practiced other aspects of disaster plan on Nov. 13: 49%
- Helped others prepare for the Drill: 46%
- Played an online earthquake game: 14%
- Participated in a meeting about earthquakes: 39%

Would you participate if we had a big earthquake drill every year?

- Yes: 97%
- No: 3%

Note: Participation in the survey was limited to respondents 18 or older, and thus very few K-12 students were included in the sample.
Key Findings

- Traditional media was a very effective outreach tool: two-thirds (66%) heard about earthquakes from TV news and over half (55%) read about earthquakes in a newspaper.

- Sixty percent reported seeing earthquake-related information on the Internet, but a very small portion of these respondents found this information on much-hyped social media sites such as YouTube (5%), Facebook (4%), or blogs (4%).

- Most respondents who encountered earthquake information online found it on the ShakeOut Webpage (86%) or on online news sites, such as the Los Angeles Times or the New York Times (46%). Those who physically participated in the Drill were significantly more likely to have found information on online news sites, as opposed to those who signed up but did not participate (36% vs 20%).
How many times do you recall seeing or hearing something about the Great Southern California ShakeOut?

- 1 time: 5%
- 2 times: 9%
- 3 times: 11%
- 4 or more times: 75%

Did you receive any print materials about the Great Southern California ShakeOut?

- No: 56%
- Yes: 44%
Key Findings

- People who talked with others about earthquake preparedness had a higher rate of Drill participation (79%) compared to people who didn’t have such conversations (55%).

- Those who physically participated were significantly more likely to invite others to join (84% vs 70%) compared to non-participants.
Key Findings

• All those surveyed had signed up for the Drill, but only 22% were able to recall the key message – “Drop, Cover and Hold On” – without a prompt.

• Individuals who physically participated in the Drill on November 13, 2008, were more likely than non-participants to recall at least some portion of the key message (48% vs. 38%) and to get the highest score (20 or more out of 22) on the knowledge questions (48% vs 37%).

• Ninety-five percent of Drill participants ventured an answer to all 22 knowledge questions, but just over half of non-participants did the same (54%).

• Twenty-two percent endorsed the “Triangle of Life” as an appropriate response to an earthquake. This response, which has been popularized through viral email exchanges, has long been discredited by the American Red Cross and the Federal Emergency Management Agency. People who did not participate in the Drill were more likely than participants to endorse the Triangle of Life (28% vs 20%).

• Thirteen percent believe that getting under a doorway is an appropriate response to an earthquake, although health agencies say that this advice is only applicable to people in adobe structures. Drill participants were significantly less likely than non-participants to endorse this response (12% vs 17%).

• People who did not participate in the Drill were almost four times more likely to leave blank an open-ended question about the key message of the campaign (54% vs 14%). Those who signed up but did not physically participate were nine times more likely to skip all of the knowledge questions (46% vs 5%).
Respondents who recalled key message of Drop, Cover & Hold On, without prompt:

- Did Not Recall Message: 78%
- Recalled Message: 22%

Knowledge:

- Did Not Recall Message: 78%
- Recalled Message: 22%

What should you do during an earthquake?

- Drop, Cover & Hold On: 87%
- Find the Triangle of Life: 22%
- Get under a doorway: 13%

If you are outside during an earthquake, you should:

- Drop, Cover & Hold On: 92%
- Get close to a large object: 6%
- Run inside a building: 3%

If you’re in bed during an earthquake, you should:

- Quickly move to another location where you can drop, cover and hold on: 42%
- Stay in bed and cover your head with a pillow: 44%
- Roll to the floor: 19%
If you’re driving during an earthquake, you should...

- Pull off the road and set your emergency brake (94%)
- Stop and get out of the vehicle (6%)
- Continue driving (2%)

What should you do right AFTER an earthquake?

- Call 911 (97%)
- Search for survivors in damaged buildings (5%)
- Move injured people (23%)
- Call family (78%)
- Check for safety warnings (91%)
- Check gas, fire & electrical hazards (95%)
- Prepare for aftershocks (98%)
- Check injuries (98%)

Endorsement of other methods by Drill participation

- Endorsement of “Triangle of Life” (28%)
- Endorsement of getting under a doorway (12%)

Non-response to key message question:
- Participated in Drill: 14%
- Did not participate: 54%

Response to every knowledge question:
- Participated in Drill: 95%
- Did not participate: 54%

Non-response to all knowledge questions:
- Participated in Drill: 5%
- Did not participate: 46%
Key Finding

- A month after the Drill took place, a large majority of participants in the Great ShakeOut were still not well prepared for a major earthquake. Only 12% described themselves as “very well prepared” for a large-scale earthquake, and 32% described themselves as fairly or totally unprepared.
Key Findings

- In terms of gender and race, the demographic distribution of those who signed up for the Drill did not match the distribution in Southern California. Sixty-seven percent of respondents were female (compared to 50% in Southern California) and 75% were white (compared to 42%). Hispanics were vastly underrepresented (15% vs 39%), as well as Asian-Americans (7% vs 12%) and African-Americans (3% vs 7%).

- People from Chino Hills and Riverside were more likely to have signed up for the ShakeOut than other communities in Los Angeles. The increased participation in these adjacent communities may be explained partly by the 5.5 earthquake that took place in Chino Hills on July 29, 2008.

- Pasadena and communities around the University of Southern California campus also had higher participation rates, probably because there was more outreach in those vicinities: USC’s Southern California Earthquake Center and several Pasadena-based institutions – including Art Center College of Design, California Institute of Technology, and the U.S. Geological Survey – were key organizers for the ShakeOut.
The Norman Lear Center • Get Ready Survey

demographics

What is your annual income ($/year)?

- Less than $25,000: 10%
- $25,000 to $49,999: 18%
- $50,000 to $74,999: 19%
- $75,000 or more: 32%
- Prefer not to answer: 21%

Ages of Survey Respondents

- 40-49: 25%
- 50-59: 27%
- 60-69: 15%
- 70-79: 9%
- 80-89: 5%
- 90-99: 2%
- 18-29: 10%
- 30-39: 16%
Survey Participants by Zip Code
The Norman Lear Center’s L.A. Earthquake: Get Ready survey evaluates the impact of an entertainment education-based public awareness campaign called the Great Southern California ShakeOut. The objective of this study is to evaluate the effectiveness of the multimedia campaign and particularly the ShakeOut Drill, a full-scale public spectacle involving nearly 5.5 million people. The study investigates how exposure to various campaign activities and messages influenced participants’ knowledge, attitudes, and beliefs related to earthquake preparedness, response, and recovery.

The Internet survey of 3,068 adults who had signed up for the Great Southern California ShakeOut was conducted between December 15, 2008 and December 30, 2008, one month after the ShakeOut Drill took place. Eighty percent of respondents (2,468) completed every question on the survey. The margin of error is 1.85%.

A second survey was administered in April 2009 to determine the longer-term impact of the ShakeOut activities. The use of two post-tests will allow us to see what the participants know about earthquake preparedness immediately after the campaign, and in five months, if the information was sustainable. An academic publication about the results of both surveys is forthcoming.

Martin Kaplan, PhD, serves as Principal Investigator for this project. Deborah Glik, ScD, and David Eisenman, MD, MSHS, consulted on the research methodology, data collection, analysis and reporting. Johanna Blakley, PhD, is the Research Director and Nancy Chen, a PhD candidate at the USC Annenberg School for Communication, performed the statistical analysis of the data. Hollywood, Health & Society Project Coordinator Michelle Cantu, MPH, assisted on the survey design and implementation.