

Abstract



On November 13, 2008, schools throughout Southern California participated in the Great Southern California ShakeOut, the largest earthquake drill ever implemented in the United States to date. As part of this effort, an international team of 13 experts and school safety advocates, including the authors, conducted field observations of school emergency preparedness and response at three participating schools. Furthermore, the team administered an online school preparedness survey prior to the event and an online post-drill survey after the event. Over 200 school administrators and district officials completed each survey, providing a detailed assessment of current school mitigation and preparedness levels including, school structural mitigation, school evacuation planning, school emergency response planning, and outreach to parents and communities.

The Institute for Global and Community Resilience, part of Huxley's College of the Environment at Western Washington University, is leading the survey analysis effort. The qualitative and quantitative data revealed major themes, which included positive practices and useful statistics. The Institute for Global and Community Resilience and Risk Reduction Education for Disasters (Risk RED) are currently developing a report with analysis and recommendations for stakeholders.

The IGCR and Risk RED received grants from the international non-profit ProVention Consortium and the Southern California Earthquake Center to coordinate an international team of 11 school safety experts and advocates and perform field observations at three Los Angeles region schools. The team was composed of professionals from Japan, UK, Algeria, Panama, Venezuela, and Turkey. Western's IGCR was vital in planning the week with meetings, site visits, and observations on the day the day of the drill.

The team convened in LA one week prior to the drill. During the week the team participated in meetings, site visits, pre-ShakeOut events, and other related activities. At 10 AM the team was strategically placed to observe response procedures at an elementary school, middle school and high school. In coordination with the field observations the team developed an online survey to assess school preparedness. The authors, in coordination with Risk Red, synthesized field observations and analyzed school survey responses

Methodology



Observations

Students are very familiar with drop, cover and hold on (DCH) protective measures in an earthquake. However, often teachers and staff attempted to do DCH only to find that files and personal belonging under their desk made DCH impossible. Teachers and staff that are not able to adequately protect themselves during a real earthquake may be injured and become a burden rather than an asset during the evacuation and emergency response.

Most classroom doors were closed at the time of the earthquake drill. During an actual earthquake some closed doors may become jammed due to building shifts and teachers may then be unable to open them during evacuation. If door stoppers are installed, administration may want to instruct teachers and staff (if safe) to immediately prop open their classroom door prior to ducking, covering, and holding on.

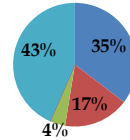


- Classes with severely disabled children were evacuated. Some were on medications requiring sun protection. Special evacuation routes had been planned to avoid the larger crowds. Special education teachers modify drop, cover and hold position and practice with their students. One teacher reported that he sees his classroom as a ship, and he the captain who will be the last one out.
- An important part of any school emergency plan is how to safely reunify students with their parents, guardians or approved emergency contacts. While schools observed had simple, effective, and organized systems for reunification record keeping, signage directing community members towards the request and reunification gates was poor. During the drill, no one placed signs around the school perimeter directing inquiring parents towards the request gate. Anxious parents may attempt to scale fences or break into the buildings before finding the appropriate area to request students.

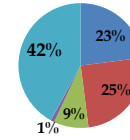


Preparedness Survey

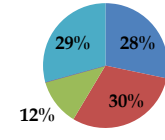
Students & staff are encouraged to be prepared for disasters at home



Plans exist for an alternate schools site for school continuity following a disaster



Secure off-site back-up of records exists should they be destroyed in a disaster



■ Yes ■ No ■ Not Sure ■ N/A ■ No Answer

Schools can act as an important catalyst to home and community preparedness for disasters. While nearly half of the schools did not answer this question, it is encouraging to see that over one-third responded that they are encouraging student and staff home preparedness.

If an emergency effects the regular operations of a school, it is necessary that an alternate site be identified for students to continue learning. Less than a fourth of respondents said they have an alternate location.

An earthquake can damage school electronics and local electrical lines. Since the loss of student and school records can cause legal, logistical, and life threatening issues, it is important that schools have secure off-site back-ups. Of the 197 schools surveyed, less than a third said they did.

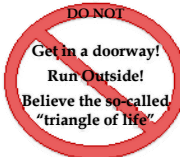
Preparedness Actions Taken & Response Capacity

Actions Taken	All	Most	Some	Few	None	Not Sure or N/A	No Answer
School staff have reviewed & revised plans in the past year	48%	26%	12%	5%	3%	3%	3%
Plans are in place to assist individuals with disabilities, or any special needs	64%	10%	4%	2%	3%	13%	4%
School building(s) meet all current standard EQ safety	57%	14%	6%	3%	1%	18%	2%
Tall & heavy furnishings are fastened from falling	36%	36%	12%	4%	3%	9%	1%
Students have practiced "Drop, Cover, & Hold On" in class, and building evacuation	81%	10%	3%	3%	2%	0%	2%

The table to the left highlights five actions that are imperative to school safety, especially in the event of an earthquake. Over 50% of surveyed schools indicated all or most of their staff have reviewed and revised emergency plans, have procedures to assist all or most of their disabled students, have all or most of their buildings up to code, and have all or most furniture secured. Over 81% of the schools surveyed reported that all students participated in earthquake drills and evacuations. Schools reported the lowest level of task completion for securing furniture from falling.

School Staff Preparedness Training

Training	% of Schools With Some Staff Trained	Average # of Staff Trained
Basic First Aid	97%	8
Fire Suppression	20%	3
Shutting Off Utilities	90%	2
Trauma Counseling	55%	2



The preparedness survey asked schools whether or not they had staff trained in several key skills necessary to keep students and staff safe, and respond effectively to an emergency situation at school. Almost all schools surveyed have staff trained in basic first aid and shutting off utilities. Conversely, only 20% of the schools have any staff person with training in fire suppression. On average, schools surveyed had only two people trained in utilities shut off and trauma counseling, and only three trained in fire suppression.



Conclusions & Future Research

School safety and emergency preparedness is fundamental to protect children. It is the responsibility for schools to have plans and procedures in place, and know how to implement them. The purpose of drills like ShakeOut are for students and staff to learn and practice what to do in the event of fires, earthquakes, and emergencies. The knowledge and skills that staff and children learn will protect them in school and can encourage home and community disaster preparedness and risk reduction.

Our observations identified areas where improvements should be made to handle such tasks as parent-student reunification, protecting individuals with disabilities, and the ability to perform "Drop, Cover and Hold On." While schools in Southern California show high levels of preparedness in drill execution, first aid, and moderate levels of preparedness for assisting disabled students, concerns still exist. Schools should seek to increase fire suppression skills and pre-disaster non-structural mitigation such as securing furniture. Furthermore, they can improve their preparedness for earthquakes by implementing drills during unexpected and unusual times such as lunch, recess, and drop off. Schools can also work to improve reunification through flexible and accessible signage to communicate with parents coming to the school to pick up their children. The survey and observations provide guidance to show why school safety must be re-assessed and improved upon for the optimal outcome in the event of an emergency.

California plans on establishing a state-wide ShakeOut next November, with the potential for follow-up observations and analysis. Further research is also needed on optimal methods for encouraging schools to implement, evaluate and revise school safety policies. Policies for encouraging staff training in emergency response skills should also be devised.