



How Can We Integrate ShakeAlert into Schools? Lessons from Earthquake-Affected Communities

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The Importance of Schools and Earthquake Safety



Research Project: How Can We Most Effectively Integrate ShakeAlert into Schools?



Our Research Team



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Our Research Study

Phase I

- Approach: Qualitative fieldwork interviews, focus groups, and observations
- Study Sites: Anchorage and Matanuska-Susitna Borough, Alaska and Ridgecrest and Trona, California
- **Study Focus:** Earthquake case studies and earthquake early warning
- **Sample:** 111 interviews with K-12 school administrators, teachers, parents, students, emergency managers, building officials, and engineers
- Timeline: January and February 2020, analysis ongoing

Approach: Survey research

- Study Sites: School districts in California, Oregon, Washington, and Alaska
- Study Focus: Knowledge of, attitudes toward, willingness to adopt earthquake early warning
 - Sample: School district leaders
 - Timeline: Spring and Summer 2021

Phase II

Our Research Study

Phase I

- Approach: Qualitative fieldwork interviews, focus groups, and observations
- Study Sites: Anchorage and Matanuska-Susitna Borough, Alaska and Ridgecrest and Trona, California
- Study Focus: Earthquake case studies and earthquake early warning
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Phase II

- Study Sites: School districts in California, Oregon, Washington, and Alaska
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Findings



(1) Questions about ShakeAlert

- School respondents in both Alaska and California reported that they had relatively little or no understanding of what earthquake early warning is or of how it would work in schools.
- "I don't completely understand the premise behind it, but I've always heard that if its close to the epicenter, you're not going to get a warning. I've heard something about catfish... Catfish can sense [an earthquake], something like that [laughter]. But I don't know. I don't think it would have helped us on that day." -Alaska respondent



(1) Questions about ShakeAlert

- ► How does it work?
- How much warning time will we have?
- ► How will the alerts be delivered?
- What is the earthquake magnitude threshold for an alert?
- What will the warning message say or sound like?
- What about when kids are on buses, in passing period in the hallways, in gym with no desks, or outside on the grounds?
- What if there is a false alert?
- Do schools have to pay to participate?
- What if our technology won't support the system?



(1) Questions about ShakeAlert

- RISK of confusion and overwhelm.
- OPPORTUNITY for targeted messaging to schools.
- "I think it would be very useful, but I think people need to understand what it means... If people had a warning, we would want to make sure they understand what they're supposed to do."



(2) Uncertainty about Delivery Mechanisms

- Mobile Phones?
- "But you're not supposed to have your phone out in class."
- "Our youngest students don't have mobile phones. How would they get warned?"
- "We ban phones for students and teachers in the classroom."



(2) Uncertainty about Delivery Mechanisms

- Mobile Phones?
- School Siren Systems?
- "That's what I was thinking for tying" it into our systems. I don't even see how that would be possible, honestly. We have five different intercom systems. Some are so old we are getting parts off of eBay for them. We're in the process of updating them, but I don't know how that would tie in. Do we have to pay for that, you know what I mean, so that would be a barrier." -Alaska respondent



(2) Uncertainty about Delivery Mechanisms

- Mobile Phones?
- School Siren Systems?
- Principals or Administrators?
- "I still think there needs to be at least a filter. I don't think it should go straight to students because most of them aren't allowed to have phones in the room anyway. So it's someone, whether it's a principal, admin, secretary, who can sound an alarm, you know. There has to be some kind of control." –Alaska respondent



(3) Concern about Drills and Warnings

Drill Fatigue

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(3) Concern about Drills and Warnings

- Drill Fatigue
- Warning Confusion
 - Sounds?
 - Visual Alert (flashing lights)?
 - Words?



(3) Concern about Drills and Warnings

- Drill Fatigue
- Drill and Warning Confusion
- Drill and Warning Anxiety
- Educational Consequences of "Over-Warning"
- "It's tough. I don't want to sound like a bad teacher, but now that we've had an earthquake, it would be really easy to cause chaos in the classroom. If one student gets an alert for an earthquake, that student for sure is like 'earthquake is coming, everybody be ready.' Then, all of a sudden, you've lost. Everything for the day is done. There is no coming back from that. Everybody is already under the desks or they're outside and I think it would--for the students' safety purposes, I think it's great. But again, I think there would have to be a pretty well-defined threshold because I know I would be annoyed if every time there was a tremor everyone was like 'oh, there is an earthquake.' You know what I mean?" –California respondent

(4) Generational Differences: Students, Teachers, and Protective Actions

- When compared to their students, teachers may have received different earthquake education based on <u>when or where</u> they grew up.
- This could lead to conflicting messaging <u>and</u> behavioral queues from trusted adults.
- She was quite terrified. She grew up in Georgia. She came here from Hawaii. We have done duck, cover, holds and things before but she was so flustered. She thought maybe a bomb had hit. She didn't know earthquakes could be that big, and she was terrified. I could hear her screaming my name as she ran down the hall, so I called her, and she managed to dive over everything on the floor and get under my desk with me. I think she wasn't prepared for how big an earthquake can be." –Alaska respondent



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Can ShakeAlert help?



(5) EEW as <u>One</u> Piece of a Puzzle

Earthquake Education

ShakeAlert



Earthquake School Safety Advocates

Drills

Safe School Buildings

Thank you for your time, attention, and tireless effort!



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