

# NFPA Firewise Communities Program

## Engaging Youth in Reducing Wildfire Risk

Community Conversation Workshop  
Findings and Research



# *Why Firewise for Teens?*

## **Traditional Firewise audiences**

Since 1986, NFPA's Firewise Communities Program has focused on what adults can do to minimize the likelihood of loss of life and property from wildfire. The program's education and communication components are targeted to homeowners and include scientific principles on how wildfire can damage or destroy homes; along with the types of interventions that can be implemented at the landscaping, new construction and retrofit levels. And how those components incorporated with annual maintenance can help reduce a home's level of risk during a wildfire. Currently there are more than 800 active neighborhood participants in the Firewise Communities/USA® recognition program.

## **The situation today**

Currently, a nationwide wildland fire education program that focuses exclusively on changing youth behaviors and attitudes as they relate to prevention, preparedness and mitigation does not exist.

According to numbers from the National Center for Education Statistics, during the fall 2012 school year, enrollment for grades 6 to 12 was close to 26 million students; and in the 2007 school year 781,000 students in grades 6 to 12 were homeschooled. Using the estimate that one third of the U.S. population lives in the WUI, more than 8.8 million students could benefit from learning how to reduce the wildfire risk at their home and in their communities.

Researchers consider our nation's youth the best envoy for carrying preparedness messages home to their families and to convince their parents to prepare; but scant attention has been given to this group regarding wildfire emergency preparedness and planning. Additional research indicates that households with school aged children that brought preparedness materials home were significantly more prepared on a range of preparedness measures than other households.

This age-group is generally able to understand basic fire science, how homes ignite, fire preparedness and mitigation information, and can be a valuable conduit in getting mitigation information into the home with the ability to initiate family conversations about the topic.

During the summer of 2010, FEMA published "Bringing Youth Preparedness Education to the Forefront: A Literature Review and Recommendations." That report found children can play a special role in communicating preparedness information to friends and family members, as children are seen as a trusted source of information, as well as good messengers. This is especially helpful in families that speak more than one language or where English is not the primary language. One of the studies included in the report said, "Children could become "translators" who bring the most relevant messages back to the community, helping to bridge cultural and technical gaps."

Wildfire education components designed for youth would be the beginning of a much needed cultural shift that instills life-long knowledge about the importance of mitigation and preparedness to future land and homeowners; and can move forward the goal of reducing loss and long-term recovery impacts from wildland fires.

# Literature Search

## What others have found

Prior to embarking on new research regarding the role youth can provide in reducing wildfire risk, Firewise staff reviewed published research on current wildfire safety and education programs that specifically target youth. As previously noted, very little youth-oriented wildland fire safety materials, curricula or programs exist; and **most of what is available does not include information on why homes are lost and the relationship between embers and the home ignition zone.**

The most relevant U.S. research available included:

- *Linking Youth Wildfire Education to Fire-Adapted Human Communities in the U.S.* (2010 - Jakes, Sturtevant, Monroe and Ballard)
- *The Evolution of Smokey Bear: Environmental Education About Wildfire for Youth* (2012 - Ballard, Evans, Sturtevant, and Jakes)
- *Minnesota and West Virginia Firewise in the Classroom: Youth Working with Communities to Adapt to Wildfire* (2012 - Jakes)
- *Addressing Student Trauma in the Wake of California Wildfires* (2008 - Pang, Madueno, Atlas, Stratton, Oliger and Page)

The Minnesota and West Virginia studies were two in a series of Forest Service publications of individual case studies included in the National Fire Plan study *Promoting fire adapted communities through youth wildfire education programs.*

The two *Firewise in the Classroom* cases revealed some of the challenges in sustaining classroom programs that are heavily dependent on outside grant funding and/or individual teachers to champion the program.

The 2012 *Evolution of Smokey Bear* study examined 50 youth wildfire educational programs implemented by an educator or facilitator, as opposed to curriculum available electronically or on the Internet. In the study they found six key content areas predominantly found in U.S. youth wildfire programs: (1) Wildfire prevention, (2) wildfire safety (3) wildfire suppression, (4) wildfire ecology, (5) wildfire science, and (6) wildfire management (natural resource management and use).

In that study, gaps were identified in what is currently being offered to youth:

- The majority of programs for older children leave out personal and home safety and **fail to address the science of home ignition**
- The **topic of wildfire is wrapped into other curriculum**, often appearing as a subtopic to a larger theme
- Programs created by agencies and brought into schools are **very difficult to fund, sustain and replicate**
- Programs do not appear to **address the issue of children's needs when wildfire has impacted their homes or communities**

In contrast, the paper by Pang et al (*Addressing Student Trauma*) documented how southern California schools directly addressed student trauma following the 2007 fire season with classroom discussions and curricula. It strongly indicates that a different approach can reap benefits for affected children and also for families and neighborhoods.

Their research emphasized the important role of schools in the community. It also documents how teachers had provided a safe place within the classroom to allow students to talk about their fears, which led to a realization of the value and importance of students actually learning about natural disasters. Children returned to school anxious to speak with their classmates and teachers. **During the discussions, many teachers realized the value and importance of students actually learning about natural disasters.** If teachers have prepared students on how to respond to a natural disaster, young people can act prudently and with confidence.

Other nations have also examined the role of youth in wildfire and other natural hazards. The *Children's Knowledge of Bushfire Risk* study available on the Bushfire Cooperative Research Centre website says:

“When children had been afforded the opportunity to participate in bushfire risk reduction activities or discussions, they exhibited a much more sophisticated understanding than children who had been denied such opportunities. Importantly, when children did not have access to information, they constructed their own mental models based on their pre-existing knowledge. For example, in Australian schools, a major emphasis is placed on house fire safety and, **when children did not have information about bushfire hazards, they routinely applied their knowledge of house fire to the bushfire context.** Thus, children’s knowledge of bushfire risk is a function of two processes: socio-cultural participation in their communities and their own independent construction of meaning. Both of these processes must be facilitated and accommodated in children’s bushfire education.”

The Australasian Fire and Emergency Service Authorities Council (AFAC) illustrates that the fire service has a history of effectiveness in educating children about appropriate actions they should take in a house fire (stop, drop and roll; crawl low under smoke; and meet at the letterbox) and encouraging their parents to install smoke alarms and change batteries. But **the same attention has not been provided about bushfire.**

*Let our Children Teach Us*, a review of the Role of Education and Knowledge in Disaster Risk Reduction by the United Nations Office for Disaster Risk Reduction (UNISDR) reviewed the role of youth education and knowledge in disaster risk reduction. It builds on work that recognizes youth, families, schools, and other community organizations are agents for promoting community resilience to natural hazards. They found that **teaching about hazards is not enough to promote risk awareness or action**

## *Youth conversation workshops and teacher questionnaire*

**on the part of youth – it should be taught as part of a comprehensive package with disaster prevention and preparedness.** Many of the games and risk-awareness aids developed for children and youth use approaches that fail to explore the true nature of risk reduction.

### **Engaging youth in the process**

With a dearth of published literature on what youth want and need regarding wildfire safety information, Firewise Program staff engaged teens and their parents in an interactive conversation on the topic while incorporating the research and principles listed below:

- Australian researchers Briony Towers, John Handmer, Katharine Haynes, Douglas Paton and Josh Whittaker found in their study *Children’s Knowledge of Bushfire Risk* that “In order to develop bushfire education programmes that accommodate the knowledge and perspective of children, children must be given the opportunity to articulate their views.”
- In *The Power of Positive Deviance* book the authors describe steps to achieve social paradigm shifts that include these principles:
  - Involve everyone; go to improbable places and to unlikely people to find solutions.
  - It is not “expert” driven. Community members provide culturally appropriate expertise.
  - Don’t do anything about me without me.

The Firewise workshop format engaged teens and their parents in a focused conversation about wildland fire safety, Firewise concepts, their preferred program styles and the most desirable delivery mechanisms. The primary objective of the workshops was to give middle/high school students and their parents a voice and role in developing future resources for teens that live in areas with a wildfire risk. They were an opportunity to hear directly from the target audience, learn what they know about the topic, their preferred learning styles and what would appeal most to them and their peers.

During June and July 2012, six workshops were held throughout Texas and Colorado in a community that had experienced a wildland fire during the previous eighteen months. One of the workshop sites had to be changed less than a week prior to the scheduled date, due to an active wildfire and evacuations impacting the community where it was scheduled to be held. That workshop was moved to a WUI community with a wildfire risk, but those attendees had not been directly impacted by a recent fire. There were a total of 105 participants – 81 students and 24 parents.

The six conversations, along with a short questionnaire to teachers in four communities also recently impacted by a wildfire, yielded information on what middle/high schools students know about wildfire, what they want to know, and the best ways to reach them; along with insight into the role teachers and schools perform in providing information and education.

### **Where youth get their information**

The majority of students attending the workshops said their most common sources of wildfire information

were **traditional media sources** and tied as the second most frequent source was **parents and school**, followed by the **Internet**.

School may have been cited as one of the most common sources of information; however most participants said **extremely limited information was shared with them at their school during and after the fire in their communities**; even though all of the fires that impacted attendees occurred during months that school was in session.

When asked what resources (other than the Internet) are available for student's to get wildland fire information, most were unsure of what was available to them. **Resources mentioned included:**

- Facebook
- Texting
- Town events
- Word of mouth

During the conversation about resources, some of the groups were asked about the types of media they actively use. The most frequent responses are listed below in order of overall usage:

- Email (considered by participants as a form of "media")
- Facebook
- Local News

### **What teens already know (or think they know) about wildland fire**

The groups were asked to **share the most important piece of information or knowledge they had about wildfire**. Only a few could think of something to share and those responses included:

- ❖ How fast it spreads
- ❖ That it's unpredictable
- ❖ Human fires can be avoided
- ❖ You need to be prepared
- ❖ How it starts and the causes
- ❖ People need to be ready to go

Participants were asked if they had been evacuated due to a wildfire – and if so what was the most impactful action that they or their family did before leaving home? And, if they had not been evacuated what was the most important thing about wildfire that they would share with someone else? **Getting their pets out safely** was the most common response about their most impactful action; along with helping other people get their **animals out "because animals are family too and are more important than anything else."** Many felt helping their neighbors was something they should and wanted to do. A couple of students had experienced multiple evacuations and said the **most impactful thing they'd done was the work they did at their house before fire season**.

Since teens often **babysit for other families or have responsibility for watching younger siblings**, they were asked what they would do if they were acting in that capacity when a wildland fire happened. More than half said they babysit and **almost all said they'd never had a conversation about what they would**

**if they were in a role of responsibility and a wildfire occurred.** There was a broad spectrum of responses on what they would do in that situation – and some said **even though they don't know how to drive, they'd take control of the situation by taking a car and driving the kids to safety.** Many said their choice would be to call the children's parents or their own parents and follow their advice, or call 9-1-1 for help. **Many said they would go to a neighbor's house – but had not thought about what they'd do if the neighbor wasn't home.** Some thought they should just go outside and/or start walking. Most were focused on what they should take with them.

### **What teens want to know about wildland fire**

- **Danger(s)**
- **How to reduce the risk**
- **Impact on where we live**
- **How bad it can be and how fast it happens**
- **What happens in a wildfire**
- **How to educate others**
- **What wildfire can do to the land**
- **How they can protect pets and animals**

As expected, the interest level in learning about wildland fire increased significantly when there was a wildfire close to where they live or a place they're familiar with. A very common response was **they would want to learn about wildfire if they knew they could lose things** (animals, computers, etc.). Pets and other animals were a huge reason they wanted to learn more.

Some felt it was very important to know what to do because their parents aren't always home, and one group adamantly stated that **if you want us to pay attention – it needs to get our attention!** Another comment heard was, **"Students aren't going to look for information themselves – you have to get it to them."**

### **Where and how information should be shared**

When asked what would be the most effective ways to reach middle and high school students - **school was the most frequent response.** Use of **a traditional classroom approach was ranked equally with non-traditional classroom choices;** with science (chemistry, biology, and earth science), geography, social studies, health and English classes all named as a potential fit; followed by non-traditional choices of field trips to a burn area, and service projects through faith based groups.

At each session the topic of **school assemblies** was discussed and the responses were split on their power to motivate or change behaviors. Primary influencing factors included whether attendance at assemblies was mandatory or optional. Comments were unanimous that the assembly had to be engaging and needed multi-media components. It was repeatedly heard that **if an assembly was done, it needed to involve teens, and or teens and their families that had been impacted by wildfire.** Common examples of assemblies that had a large impact on them included re-enactments of drunk driving (Shattered Dreams), texting while driving, or those that demonstrated the effects of drug use.

Group learning opportunities were cited as one of the most effective ways to deliver wildland fire educational information. The concepts shared included: group community project, home school groups, workshops, and faith-based groups; they felt **human-to-human information sharing was much more effective than advertisements of any form.**

The students were asked what would motivate them to work on a community or neighborhood project that benefits people who live in areas with a wildfire risk and their responses included:

- Volunteer/community service hours that fulfill a school requirement
- If they knew they were helping someone or changing a person's life
- The satisfaction they would get from helping someone
- Learning what their actions could do
- Hearing about projects other teens have done
- Show us before and after pictures
- Hearing anecdotal stories and testimonials from others similar in age

Technology and social media are a big part of their lives – and many thought an **electronic game, Apps, and lots of digital effects would help draw youth into learning more about wildfire.** Non-tech options included board games. **They felt strongly that multiple products should be made available because everyone learns differently.**

Most of the participants said they still spend time watching TV, and that newspaper is their second preferred type of traditional media, with radio a distant third. The majority said they don't want to hear messages from celebrities or actors; but they **want to hear from real people that have experienced a wildland fire.**

**Videos were ranked as a powerful way to reach middle and high school age youth.** The groups were very vocal in sharing what appeals to them and they emphasized that **teens impacted by a wildfire need to have a primary role** in the video. **Factual information** about fire behavior, statistics, items that can be damaged in a wildland fire and **actual footage** that reflect the true perspective of what happens were comments repeatedly shared as being important components of the video.

**Educational songs** were talked about as a way to reach middle school students because kids can relate to a song and remember it. The students said music is a way to deliver messages that are easy to remember - an example was a song learned in science class that taught them about photosynthesis.

**Social media** was also discussed and surprisingly only an extremely small number of students said they use Twitter; but **they text and use Facebook a lot.** Many of the students suggested some type of Facebook contest to get them to "Like" the page so they will continue to get information past the end of the promotion.

### **Message delivery**

When asked - who's the best person to deliver wildland fire messages the teens again said **peers that have been through a wildland fire, and hearing it from an entire family would be really good.** **They want to learn from real people that make it relatable – not actors, celebrities, or politicians. Create messages using our peers and don't make them scary, but make them real.** One student said, "If adults tell me stuff it doesn't really stick with me – but another teen that's been through it telling me about it will make it stick!" **Firefighters were also an acceptable person to deliver messages.**

The students in attendance stressed that it would be more impactful if the information was not delivered by a teacher; but if a teacher was used it needs to be one that is liked and trusted and preferably one that had been impacted by a wildfire.

### **Appropriate ages**

The participants were asked what age/grade level was appropriate for youth to start receiving wildland fire information; and what types of information would be appropriate. The answers ranged from first grade through middle school; with the **majority saying middle school to high school is the best age/grade level.**

### **The types of information youth think are important**

When asked if they had an opportunity to provide information on wildland fire to a friend, family member, or neighbor that resides an area where wildland fires happen; what would it be? One of the most frequently heard themes was that they would provide information about **how fast fire can travel** – thus making it a good hook for prevention and mitigation messaging. **Once again, pets were a common theme** – this age group is very concerned about how to protect pets and animals. Information on evacuation was commonly given as a response, but they also said **they would share very general information about fire in the ecosystem, how fire travels, why or why not people should stay and protect their homes, the things that can cause a fire, and mitigation might give you time to evacuate, the importance of doing things before the fire, the good and bad of wildfire, and how to prevent it from happening.**

Other types of information included: **how to keep their home safe, causes, fire behavior, how to reduce the risk, how it impacts people, related health issues and the impacts for kid's health (asthma).**

### **Motivating youth to search for and act on wildfire safety information**

Participants were asked **what would motivate them:**

- A video that shows the extent of the damage and/or a video where a person talks about what happened to them
- Other teens that did a community project - talking about what they did to help their community
- A mitigation project that's open to everyone in a certain grade
- Honest in-depth information
- Firefighters talking about wildland safety
- Families and teens that experienced a wildfire

Attendees were asked, **if there was a resource available for teens to participate in an age-appropriate wildfire reduction project would you or your friends be interested?**

- There was a lot of interest if programs were made available to them
- They were interested in both pre and post fire project choices
- Many said little types of incentives would increase the attractiveness – those incentives could be as small as providing lunch

### **Additional findings**

When asked if prior to the workshop session they'd **heard or were familiar with the term Firewise** only a few indicated that they had some level of familiarity. But, when asked if it was a good name for a middle and high school program the majority thought it was appropriate.

The groups were asked if they **would share wildfire information they received with their families and almost everyone said they would do it**. When asked if teens are effective at impacting their parent's behavior – the students **felt they were somewhat effective and that they can influence them**. When parents responded to the same question they said their **kids are effective at talking to them about things they need to do and that they are a parent's best reminder about safety issues**. Some of the students said it was **important for them to know about wildfire so they can remind their parents**.

### **Parent Comments**

The majority of parent attendees said they had conversations with their middle/high school children about wildfire. However, the **student's comments did not reflect the level of knowledge that their parents felt they had** regarding both general information and actual mitigation activities. Many said **they talk more to their kids when there are fires in and around their communities** rather than having proactive conversations.

Parents said they feel **the information shared at school is extremely limited and there should be more of it**. They **believed teachers need additional education on the topic** – and said because teachers don't know how to talk about it the topic becomes a classroom no-no. Generally speaking, **parents feel like they have a role in being a source of wildland education/information**. However, many parents feel unprepared to share information with their kids because they don't have the level of knowledge needed to engage in the conversation.

Just like the youth participants, the **parents thought the middle/high school age group would be most receptive to learning from their peers that have experienced a fire**. When asked **what are the most important pieces of wildland fire information that their children should know** the most common responses were: **what starts a wildfire, mitigation, prevention, preparedness, and fire behavior**.

### **Teacher Questionnaire**

During October 2012, a questionnaire was distributed to middle and high school teachers in Bastrop, TX; Larimer County, CO; Conifer, CO; and Colorado Springs, CO (all areas that had a recent wildfire).

Below is a summary of the findings:

- ❖ Sixty-four percent of the responding teachers said they did not search for grade appropriate wildland fire classroom resources/materials following the recent fire in their community.
- ❖ If they were accessible and available at no charge – 61% said they would utilize age-appropriate community service project ideas and templates, and 55% said they would use a video lesson with a wildfire scientist or firefighter.
- ❖ When asked who they would use as a resource to access wildland fire educational information 73 % said they would use the local fire department and the second most popular response was their state forest service.

- ❖ Teachers were asked if they provided classroom time for a discussion on wildland fire related topics when they returned to the classroom - only 38% said they did and that the information they shared was very basic.
- ❖ A third of the teachers said there is time and opportunity for schools in high risk wildfire areas to provide awareness and education information to students.
- ❖ If the classroom was not the best place for students to receive wildfire education and awareness information where should it come from – 71% said their local fire department and 55% responded that it should come from parents.
- ❖ Teachers were asked how often students shared information they learned at school with parents or other adult family members; 45% said they do it frequently and 53% said once in a while.
- ❖ Close to 75% said family information sharing happened occasionally when the information encouraged a behavioral change.
- ❖ The teachers felt school assemblies were an effective way to reach students with wildland fire information 31% of the time; and 54% felt they were somewhat effective.
- ❖ 85% of teachers said they did not receive any parental requests for classroom discussions related to the recent wildfires.

### **Recommendations**

Conversations from the recent youth and parent workshops provided valuable input on the type of wildfire information and resources that youth want and need. The workshops combined with the literature search and questionnaire to teachers, provided a strong set of indicators about the types of programs, materials, and distribution strategies that will provide the most efficient and effective delivery mechanisms for educating wildland/urban interface youth audiences; with preparedness/mitigation messages.

An effective format must actively engage youth in learning how to reduce their community's wildfire risk using Firewise principles and the information used in Home Ignition Zone workshops; without the use of scare tactics. To accomplish that it requires an untraditional approach that is unique and innovative while also being motivational and empowering.

To increase effectiveness, the program needs to be available in both English and Spanish, and developed in a stand-alone format that does not require a teacher or outside presenter for delivery. It must be available at no-cost to all users, in an easy-to-use, on-demand format, without the need for prior training, or any type of additional tools or resources.

---

This report was produced in cooperation with the USDA Forest Service, US Department of the Interior and the National Association of State Foresters. Firewise is a program and a registered trademark of the National Fire Protection Association. NFPA is an equal opportunity provider.

## *Works Cited*

Always ReadyKids (ARK). <http://www.alwaysreadykids.org>. (Accessed September 13, 2012).

Australasian Fire and Emergency Service Authorities Council (AFAC) Knowledge Web. [http://knowledgeweb.afac.com.au/video/safety/cfa\\_bushfire\\_education\\_program](http://knowledgeweb.afac.com.au/video/safety/cfa_bushfire_education_program). (Accessed April 19, 2012).

Ballard, H.; Evans, E.; Sturtevant, V.; Jakes, P.; 2012. **The Evolution of Smokey Bear: Environmental Education About Wildfire for Youth**. *The Journal of Environmental Education*, 43(4).

Census 2010. <http://2012.census.gov/2010census/data/>. (Accessed July 10, 2012).

Centers for Disease Control and Prevention. 2012. **Zombie Preparedness**. <http://www.cdc.gov/phpr/zombies.htm>. (Accessed September 28, 2012).

Eschool news. 2012. **Education Chief wants textbooks to go digital**. <http://www.eschoolnews.com/2012/10/03/education-chief-wants-textbooks-to-go-digital/>. (Accessed October 3, 2012).

FEMA Citizen Preparedness Review. 2010 (Issue 6). **Bringing Youth Preparedness Education to the Forefront: A Literature Review and Recommendations**. [http://www.citizencorps.gov/downloads/pdf/ready/citizen\\_pep\\_review\\_issue](http://www.citizencorps.gov/downloads/pdf/ready/citizen_pep_review_issue).

FEMA Region 1 - Student Tools for Emergency Planning (STEP). <http://www.riema.ri.gov/step/>. (Accessed October 15, 2012).

International Fire Chiefs Association. 2009. **Quadrennial Fire Review**. [http://www.iafc.org/files/wild\\_QFR2009Report.pdf](http://www.iafc.org/files/wild_QFR2009Report.pdf). (Accessed August 2, 2012).

Jakes, P.J. 2012. **West Virginia Firewise in the Classroom: youth working with communities to adapt to wildfire**. Res. Note NRS-138. Newton Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.

Jakes, P.J. 2012. **Minnesota Firewise in the Classroom: youth working with communities to adapt to wildfire.** Res. Note NRS-139. Newton Square, PA: U.S. D.A., Forest Service, No. Research Station.

Jakes, P.J.; Sturtevant, V.; Monroe, M.; Ballard, H. 2012. **Linking Youth Wildfire Education to Fire-Adapted Human Communities in the U.S.** St. Paul, MN; Group 9, People and Their Environments, Northern Research Station.

National Center for Education Statistics. <http://nces.ed.gov>. (Accessed July 10, 2012).

National Public Radio. 2012. **YouTube Trends: Politics and Pop, Yes, But Education and Science Too.** <http://www.npr.org/blogs/monkeysee/2012/08/28/160158625/youtube-trends-politics-and-pop-yes-but-education-and-science-too>. (Accessed August 28, 2012).

Pang, V.O.; Madueno, M.; Atlas, M.; Stratton, T.; Olinger, J.; Page, C. 2008. **Natural Disasters: Addressing Student Trauma in the Wake of the California Wildfires.** Social Education 72(1).

Pascale, R.; Sternin, J.; Sternin, M.; 2010. **The Power of Positive Deviance – How Unlikely Innovators Solve the World’s Toughest Problems.** Boston, MA; Harvard Business Review Press.

Rowe, A.; 2009. **Top 10 List of Scientific Videos.** <http://www.wired.com/wiredscience/2009/07/sciencemusic/>. (Accessed August 28, 2012).

Shepard, S.; National Public Radio. 2012. **Fire up Your Kid’s Imagination at the Science Fair.** <http://www.npr.org/templates/transcript/transcript.php?storyId=159005374>. (Accessed August 20, 2012).

Towers, B.; Handmer, J.; Haynes, K.; Paton, D.; Whittaker, J.; 2011. **Children’s Knowledge of Bushfire Risk.** Bushfire CRC. [http://www.bushfirecrc.com/managed/resource/2011\\_poster\\_briony\\_towers.pdf](http://www.bushfirecrc.com/managed/resource/2011_poster_briony_towers.pdf). (Accessed April 2012).

Wisner, B. 2006. **Let Our Children Teach Us! A Review of the role of education and knowledge in disaster risk reduction.** <http://www.unisdr.org/eng/task%20force/working%20groups/knowledge-education/docs/Let-Our-Children-Teach-Us.pdf>.