Challenging risk reduction through education and preparedness

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Hazard and Education

Experts have given a thought on this and came up with the following:

(risk) Hazard education (...) the transfer of knowledge, technology and expertise to enhance capacity building for disaster risk reduction (Hyogo, 2005, p. 5)

(Risk) Education can rely on a chain reaction (domino): children transmit the risk-related knowledge to their parents, peer groups (peer education) and other people in their social network (e.g.: Cardona, 2007; Stoltman et al., 2007; Wisner, 2006; Kuhlicke et al., 2011).
Memory and hazard

Research proves that the memory of a disaster remains preserved in the social sphere only for a certain period of time (Komac, 2009; Biernacki et al., 2008; Wisner, 2006; Komac et al., 2011)

UNLESS kept vivid or reminded by

1. information (media, web)
2. socially active preservation of memory such as
   - education systems plans
   - vocational and professional training courses
   - community-based self assessment
   - local and indigenous knowledge
   - awareness campaigns: museums, memorials, special events
   - Science outreach programs
Education to raise awareness ...

Non-formal learning activities

- Classroom lessons
  - ERiNat (Education on NATural Risks), lectures on natural risks and evacuation drills
  - Piovono idee! (Cloudy with a Chance of ideas!), workshops on floods and climate change

Informal learning activities:

- Science Venues
  - ERiNat (Education on NATtural Risks), ERiNat competition and the summer campuses Anch’io sono la Protezione civile (I am the Civil Protection too)
  - Piovono idee! (Cloudy with a Chance of ideas!), an active learning experience on hydrogeological risk and climate change
ERiNat non-formal learning activities

- Lectures in classrooms are an interactive learning opportunity to approach seismic and hydrogeological risk, safety good practice and forest fires from a geological perspective while highlighting the urge to know what to do in case of an emergency. In particular:
  - The seismic risk by INGV
  - What to do if the earthquake comes (Self-protection) by the Fire Brigade
  - The hydro-geomorphological by a geologist from Province of La Spezia
  - The forest fires risk by the State Forest Rangers Corps

- Evacuation drills at school carried out under control of firefighters and civil protection volunteers reporting to school officials and to the municipalities the improvements and changes needed to improve school safety.

- Piovono idee! about the laboratory planning phase and laboratory creative phase running together with the schools to build the exhibits.
ERiNat informal learning activities

- **ERiNat competition.** Since 2009 encouraged in-depth study on the following subjects dealt with in classroom:
  - LearnWhats, wheres and hows about earthquakes;
  - Adequate behaviors in case of earthquakes;
  - Become a little firefighter and Civil Protection volunteer for you and your families;
  - Prevent forest fires: a destructive phenomenon for the environment and a danger for persons and things;
  - Learn how to report a fire and what to do if a fire threatens you closely;
  - Study landslides and floods for prevention and safety.

- **The summer campuses Anch’io sono la Protezione civile.** Since 2011 the training contents are:
  - Fire-fighting drills with the Fire Brigade;
  - Forest fires- fighting (tests off and assistance in exercises with helicopter) with the State Forest Rangers Corps;
  - The Civil Protection system (visit the places affected by natural disasters);
  - Rescue activities (climbing with mountain rescue, sea rescue);
  - Provincial Civil Protection Paths and Tourism (nature trials, excursions);
  - Knowledge and preservation of local natural advantages (excursions);
  - Renewable Energy Resources (visit to the plant).

- **Piovono idee! exhibition.** An active learning experience on hydrogeological risk and climate change (Science Venues).
ERiNat (Education on NATural Risks)

Since 2004 interactive lessons on natural risks for all students in their final year of the Province of La Spezia’s lower secondary schools. Informational material is handed out. Evacuation drills are carried out under control to improve school safety.

ERiNat team: The INGV of Portovenere, the Provincial Civil Protection Service, the Prefect's Office’s Civil Protection Department, the Provincial Education Office, the Provincial Fire Brigade Department, the State Forest Rangers Corps, the voluntary Civil Protection associations and the GEV of the Province of La Spezia.
Targets

- The primary purpose is to raise awareness on the prevention of natural risks spreading the **culture of risk**:  
  - Knowing your territory  
  - Making prevention (risk mitigation)  
  - Respecting the rules

- To introduce at school the theme of natural hazard.

- To practice life-long learning prevention strategies for all last year of lower secondary schools students from the La Spezia Province (about 1800 students in 90 third classes every year) and, in a domino effect manner, the adults belonging to their families.

- To approach on environmental safety through a permanent preparedness training process aimed at providing the population with a basic education (knowledge, awareness, how to act, self-protection and prevention) on natural risks and at creating a cultural milieu which ensures a turn-over of citizens that choose to take part in the voluntary world.

- Within the specific Science Venues *Piovono idee!* to test age-targeted laboratory activities included into a learning path to encourage the community to take an active part for the good of all.
Classroom lessons popularity rating

Customer Satisfaction feedback from the students who took part in the ERiNat Project in academic year 2009-’10.

Questions included in the Customer Satisfaction questionnaire filled in by students in 2009-’10.

<table>
<thead>
<tr>
<th>Item</th>
<th>What is your opinion on the politeness, openness and friendliness of the ERiNat teachers?</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 a</td>
<td>How did the teachers deal with the subjects:</td>
</tr>
<tr>
<td>2 b</td>
<td>Seismic risk</td>
</tr>
<tr>
<td>2 c</td>
<td>Tackling an emergency</td>
</tr>
<tr>
<td>2 d</td>
<td>Forest fire risk</td>
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<tr>
<td>3</td>
<td>Hydrogeological risk</td>
</tr>
<tr>
<td>4</td>
<td>How interested were you in the subjects dealt with?</td>
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<tr>
<td>5</td>
<td>How will what you have learned help you to tackle emergencies?</td>
</tr>
<tr>
<td>6</td>
<td>How did the ERiNat lessons help you with the study of your normal school subjects?</td>
</tr>
</tbody>
</table>

Customer Satisfaction feedback from students in academic year 2009-’10

Students who have taken part in ERiNat project
Results and effects of improvement achieved

ERiNat is one of the most significant initiatives of the project developed by the Province of La Spezia Piano di attuazione e miglioramento in itinere di un processo formativo nell’ambito della prevenzione dei rischi naturali (Implementation plan and ongoing improvement of an educational process on natural risk prevention). It won an award in the competition Premiamo i risultati (We reward results) promoted by the Ministry of Public Administration and Innovation (Rome, 17 May 2010, ForumPA conference).

The keys to the project’s success

- Long-term stability of the training process;
- Interdisciplinary issue for more effective disaster resilience enabling cooperation at all levels;
- The high level of motivation, sharing and transparency among the team members;
- The choice of trainers who come directly from risk management organizations, the future reference people for citizens and volunteers;
- The research of stimulating didactic and communication models;
- The transferability of the project to other Provinces and Regions to encourage a collaborative risk management to knowledge sharing of natural risk.
The winners of 2009 ERiNat competition

Brugnato III A

S.M. “U. Mazzini”, La Spezia - III A

Castelnuovo III E
The winners of 2010 ERiNat competition

S.M. "J. Piaget", La Spezia - III D

Levanto III A

Castelnuovo III C
The winners of 2011 ERiNat competition

Follo III B

Levanto III A

Castelnuovo III C
The winners of 2012 ERiNat competition

Castelnuovo III C

Deiva Marina III F

S.M. “U. Mazzini”, La Spezia - III F
The winners of 2013 ERiNat competition

Sesta Godano III A

Levanto III B

S.M. “Alfieri”, La Spezia III C

Castelnuovo III A
ERiNat competition guided tours for winners

The winners of the 2012 ERiNat competition (top); their guided tour from Rocchetta to Brugnato (bottom left); the winners of the 2010 contest in the wind farm of the Cappelletta Pass on Monte Gottero (bottom right).
The summer campuses “Anch’io sono la Protezione Civile” concluded and completed the ERiNat course in the month of July. The program derives from a national project of the Civil Protection Department and it is managed by the Province of La Spezia, the Provincial Coordination of Civil Protection Associations and the GEV. Access to campuses is allowed through a public call and provides priority to students who took part in the ERiNat course project as a reward to their commitment.

The aim is to deepen the contents of the ERiNat project through experience and encourage children become active part of the Civil Protection system. It is also emphasized environmental and natural landscape as being valuable as such to preserve and protect it.

Delivery certificates at the Polo Civil Protection S. Stefano Magra
The summer campuses “Anch’io sono la Protezione Civile”

The Pallodola Experimental Center for Agriculture in Sarzana (topmost left); a fire-fighting drills with the Fire Brigade (topmost right); a forest fire-fighting (off tests and assistance in exercises with helicopter) with the State Forest Rangers Corps (bottom); the Botanical Garden of Monte Marcello with Rangers and Sea Rescue (right); climbing with Mountain Rescue (center).
Piovono idee! (Cloudy with a Chance of ideas!)

Piovono idee! is intended primarily for the latest years of primary and for secondary schools and involve children in building the exhibits and scientific games. Since children share with the community the tragic event, their own fears and thoughts on the floods that hit their lives, the prevention strategies experiment is carried out together with children between 8 and 14 years old living in the towns most hit by the catastrophic floods from the Magra and Vara rivers on October 25th 2011 (i.e.: Borghetto Vara, Brugnato, Monterosso, Vernazza, Riomaggiore, Pignone, Ricco del Golfo, Aulla and Ragnaia) together with a reference sample of 6 classes of "V. Alfieri", "U. Mazzini" and "J. Piaget" secondary schools (respectively ISA 1, 3 and 6) of La Spezia.

Staff INV
Centroreso tercietecnicofelicitattuale
Giovanna Lucia Plagnamer con la collaborazione di
Giovanna Mazzone e Massimo Mauz

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MARZO | APRILE
2013
SCIEZAPERTA
INCONTRI CON IL PIANETA TERRA
ISTITUTO NAZIONALE di GEOFISICA e VOLCANOLOGIA

È con grande piacere che la Specola di Givizzano presenta il prossimo appuntamento con il “Piovono idee!” nel contesto della mensile Scienzaaperta.

La scienza avanza quando si la distribuisce
Specola di Givizzano

32° Convegno Nazionale – GNCGTS
Sessione 2.3: Strumenti per la riduzione del rischio
Trieste, 20 Novembre 2013
"The risk” totem (topmost left); "The society of yesterday and today: the same pollution?" scientific games; an overview of Piovono idee! active path; "The river" exhibit; another overview of Piovono idee!
Piovono idee!

An active learning experience on hydro-geological risk and climate change to reflect on the respect for nature and our territory, a workshop path fascinating anyone who is interested to learn about playing and experiencing firsthand.
Final thoughts

Living in a natural hazard prone land requires a multi-spectrum, coordinated and synergic approach to risk reduction:

- The improvement scientific knowledge on natural phenomena and vulnerability;
- Actions on emergency plans.

However, all actions are less effective without a culture of prevention and preparedness.

This can be achieved only through education, starting from the youngest and through a permanent training process on environmental education to safety.

The population needs to be acquainted with the foundations on natural hazards:

- Knowledge;
- Awareness;
- How to intervene;
- Self-protection;
- Prevention.
Conclusions

- Living on a land prone to natural hazards is not a prerequisite that warrants a crucial compulsory education on the subject.

- We have experienced targeted science outreach activities, involving both non-formal and informal learning, to raise awareness towards natural risks.

- They span from classroom lessons to summer campuses up to contests and guided tour for school and summer campuses, from science venues with scientific games, interactive exhibitions and laboratories activities up to competition with prizes.

- The ERiNat project has been educating on safety more 10000 students in ten year from La Spezia and, in a domino effect manner, the adults in their families. For the next future we will provide tests to assess the strength of our approach.

- Piovono idee! is an active learning experience on floods and climate change. It is an up-side-down approach to raise awareness on hydrogeologic hazard, build up directly together with 378 children of 32 classes who had the experience of a disaster.

- Acceptances increasingly show that there is a pressing need for knowledge.
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