Evaluate Results of the Simulation Game “Earthquake for Kids”


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QUESTION

- Is necessary a continuous circular process, for evaluating and improving an activity for seismic risk reduction?

- Which are the variables that should be considered to evaluate seismic risk reduction activities and in particular simulation games as E4K?

- How effective are the simulation games (E4K) to improve perception and awareness of the earthquake risk?
EDUCATIONAL PROCESS

Need to educate

Effectiveness evaluation
Achievement of the expected changes
Possible redesign

Realization of activity/game

Design
Goals
Method
Tools
Resources
**SIMULATION GAMES**

- The fundamental concept of the simulation games is: "to play as if you are in the shoes of...".

- SG promote the participation, especially of children and young people but also of adults.

- The preparation, before and during game, can be modulated. It ranges from low or no preparation to facilitate the spontaneity, to a high preparation level, used to assess emotion and relations between high specialized personnel.
EARTHQUAKE FOR KIDS GAME (E4K)

- E4K is a simulation game designed and played for the first time after L’Aquila earthquake (2010), and later in the secondary schools of Pescara (2014-2016).
  E4K takes place in 3-4 hours, then - in the same or the next day - it holds a debriefing conference.

- They can play about 20-40 kids divided into specific groups. The main roles of the game are: journalists, seismologists, geologists, engineers, civil protection technicians, policy makers, investors, local contractors and citizens.

- Before the game is played, the kids do not receive preliminary skills. All information and indication are distributed during the game at the different groups, furthermore each player has a personal goal by pursue.
  The “lack” of preliminary preparation is a specific choice, done to facilitate the spontaneity and the creativity during the game, and to do emerging the a priori knowledge and thought of the players.
THE GAME (E4K)

Directions: the community is involved in the evaluation and public approval of a Local Development Plan (LDP), which must take account of economic, environmental and social needs of the territory, but also of the seismic risk that characterizes the area. Each group competes to bend the LDP at his interests.

The possibility of the occurrence of a seismic event is not presented at the beginning of the game but it manifests during the course, so players can be in the position of being able / having to change their attitudes and choices.

Material: at the beginning of the game each participant receives an identity card and informative and descriptive materials of the area, including a city map and a map of seismic hazard in the region where there is the city where the action takes place.
The Game (E4K)

- The game E4K was played in the Galilei school of Pescara on 2016, May 5-6.

- On 5 May, was played the simulation game with 6 half class (third classes, 15-16 years-old) of secondary school (about 60 students). The simulation game was played in about 4 hours.

- On 6 May was held a conference of three hours were experts analized the principal roles played in the previous day. In particular experts talked about Hazard of Pescara; Civil Protection. In the conference was involved six whole classes (about 120 students).
EVALUATION BATTERY


- **The General Ecological Behaviour** (GEB) (Kaiser, F.G.) Evaluates the general and overall behaviour of the person to act ecologically, through the number of ecological behaviours adopted.

- **Consideration of Future Consequences Scale** (CFC) (Strathman, Alan; Gleicher, Faith; Boninger, David S.; Edwards, C. Scott). Evaluates stable individual difference in the extent to which people consider distant versus immediate consequences of potential behaviours.
# Evaluation Procedure

<table>
<thead>
<tr>
<th>Time</th>
<th>Groups</th>
<th>T1 baseline</th>
<th>Game</th>
<th>Conference</th>
<th>T2 post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group (CG)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Experimental Group 1 (EG1)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Experimental Group 2 (EG2)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>
SRP-Q - RESULTS

SRP-Q DIFFERENCES BETWEEN FACTORS FOR CG - EG1 - EG2
NHIP - Results

Il nuovo paradigma di interdipendenza umana (NHIP)
Differences between CG - EG1 - EG2

- Control group (CG)
- Experimental group 1 (EG1)
- Experimental group 2 (EG2)
GEB - RESULTS

General Ecological Behaviour (GEB)
Differences between CG - EG1 - EG2

![Bar chart showing differences between Control group (CG), Experimental group 1 (EG1), and Experimental group 2 (EG2) in T1 and T2.]
CFC - Results

Consideration of Future Consequences Scale
Differences between CG - EG1 - EG2

Control group (CG)  Experimental group 1 (EG1)  Experimental group 2 (EG2)
Results indicate that E4K simulation game and Conference have not modified seismic risk perception and seismic risk awareness and they have not influenced behaviours and mental attitudes for environmental.

We think that probably, the indicators considered in the battery (risk perception, attitudes for environmental, etc.) need more structured interventions and a long time.
Is it necessary a continuous circular process, for evaluating and improving an activity for seismic risk reduction? **Yes. Because this is the one way to try to understand.**

Which are the variables that should be considered to evaluate seismic risk reduction activities and in particular simulation games as E4K? **Actually we don’t know. A possible way is to identify the principal factors that influenced our behaviours in the seismic risk reduction (see our poster n. 23-12) and try to turn them.**

How effective are the simulation games (E4K) to improve perception and awareness of the earthquake risk? **Our results indicate that they are ineffective.**
CONCLUSIONS

- We are in front of a great challenge that we have not yet won. This challenge (from a human point of view) concerns different areas not always closely related: the knowledge, emotions, behaviour, the capacity of people to decide and choose their actions.

- Currently we do not have a precise idea on what to do to achieve the education activities at seismic risk that are truly effective and probably we are not even able to assess their effectiveness in the short and medium term.

- As regards E4K specifically, we can work on the game to make it better (from simulation game to role-play) and, simultaneously, to build evaluation tools able to catch any improvements or changes that are induced by the game and that can lead to real actions of change.