



Evaluation of the natural risk perception, awareness, and preparedness at school by means of ad hoc questionnaires

Anna Elisa Bandecchi¹, **Veronica Pazzi**², Stefano Morelli², Luca Valori³, and Nicola Casagli²

¹Centre for Civil Protection, University of Florence, Florence, Italy (elisa.bandecchi@unifi.it)

²University of Firenze, Department of Earth Sciences, Florence, Italy

³INAIL - Direzione Regionale Toscana, Florence, Italy

One of the Sendai Framework 2015-2030 targets is to reduce the disruption of basic services, like educational facilities. Disaster education is actually considered to be an important factor to promote disaster risk reduction. The school resilience is not related to a specific hazard and vulnerability, but it takes into account many factors, including the people's natural risk perception and awareness, along with their knowledge and capability of how to behave in an emergency. The scientific literature provides various notions of risk, risk perception, risk awareness, and risk preparedness. The literature on children's natural risk perception is scarce and very recent compared with that about adults. Indeed, children's perceptions about nature and environment are truly different from those of adults. The available research mainly concerns the implementation of earthquake emergency measures, while not much is available on flood-risk perception and even less on landslides. The relationship between risk perception, awareness, and preparedness is widely studied, but once again, there is no unambiguous or unique result that depends on the approach and the context.

We decided to refine the questionnaire that contributes to assess the school-resilience employed in the Geo-hazard Safety Classification method (GSC). We designed 7 different questionnaires, one for the adult personnel and six for the students, taking into account the peculiarity of each age. These questionnaires were thought through and designed to investigate three main awareness fundamentals: i) knowledge of the correct behaviours and procedure during a natural emergency that occurs at school; ii) perception of the natural risk of the area where the school is located; and iii) general knowledge of the correct behaviours during a natural emergency at school.

Three different analyses were carried out on the 5899 filled in questionnaires (820 by personnel and 5079 by students of each school stage) distributed in 27 schools of Tuscany Region (Central Italy): a) school by school; b) questionnaire typology (i.e., different school age); and c) topics (awareness fundamentals i, ii, and iii) and questionnaire typology (i.e., different school age). The results are coherent and show that a) young children's knowledge is perfectly adequate to their age, b) as the age and responsibilities increase, the awareness and preparation do not increase proportionally, and c) the competences of the school personnel are not sufficient, probably caused by critical issues emerged (i.e., it is not clear where family reunification must take place) and

because the wrong hazard perception leads to underestimating the importance of prevention actions and disaster education and. This last outcome turns out to be unexpected.

These questionnaires are a suitable, quick, easy and low-cost tool, even if considered separately from the GSC method. The school head-masters or the local and national educational offices actually could use them a) to evaluate the geo-hydrological and seismic risk knowledge and awareness of students, professors and school personnel; b) to project and design actions needed to improve the school-resilience; c) to verify the goodness of the activities developed at point b); and d) as an educational tool to improve the disaster education.