Flood Risk Awareness:
An Experiment Using School Students
to Inform Families and Friends

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ABSTRACT
Communication plays an essential role in risk awareness when the gap between the risk perception and the actual risk depends on correct knowledge. This study investigates public risk awareness and public participation, as part of the European project Integrative flood risk governance approach for improvement of risk awareness and increased public participation (IMRA). The focus is on perceptions of flood risk awareness in the river basin of Chiascio (Umbria-Italy). The survey method is used to analyze flood risk awareness perception before and after an experimental communication intervention with school students. First, the authors examine flood risk awareness of school student families and friends across the population sample region. Then the authors use a unique combination of exercises – a role play game, an exhibition, and a public competition – to improve risk awareness in school children and their families. Finally, the authors test the effectiveness of this intervention in terms of flood risk awareness with the families and friends of the school students.

Keywords: Flood, Public Participation, Risk Communication, Risk Perception, School System

INTRODUCTION
Flood risk and especially the residual risk beyond technical protection measures is part of a wide set of risks often not perceived to be important in daily life. However, in recent years individuals and society are becoming more aware of risks (such as the cold weather in Europe during 2012). The key problem is not

the existence of risks but instead the adequate existence of practices for dealing with them.

Climate changes are producing increased uncertainty of flood hazards. On the other hand, risk assessment does not seem to be an important function in society (at least in Italy). Decisions in the area of “traditional” risks like flooding are usually based on probabilistic approaches, which attempt to predict the future based on the past events. Climate changes (including temperature and precipitation variations) are creating new uncertainties, because past events

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Public policy is an important factor in risk awareness. Informed risk awareness warnings from public administration (government), or those of subject matter experts, need to be accepted and widely shared for their implementation.

In this study, the Italian government Flood Risk Management Directive (European Parliament, 2007) is integrated into the flood risk awareness communication message. This regulation states that government officials “shall encourage the active involvement of all interested parties into the production, reviewing and updating the flood risk management plans” (p. 3). This directive aims at stimulating a high level of public participation in the communication processes. The goal of this study is to measure the effectiveness of implementing this directive by using school children as a means to deliver the message to their friends and families.

Another key piece of Italian government regulation impacting risk awareness communication is the Water Framework Directive, which mandates stakeholder involvement. For example, the policy states that active involvement is required from citizens, and that stakeholders should take a participatory approach (become involved in making citizens aware of flood risks).

The main objective of this project was to improve risk perception through the active participation of stakeholders, in particular by having the school children involve their families and friends. This study was part of the European project Integrative flood risk governance approach for improvement of risk awareness and increased public participation (IMRA). This project has been funded in the framework of the 2nd ERA-Net CRUE Research Funding Initiative by the Bundesministerium für Bildung und Forschung (BMBF, D), the Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW, A) and the Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA, I). The case study focuses on the Chiascio River basin (Umbria region, Italy). A survey was carried out using structured questionnaires administrated in two rounds (phases) to the families of students involved, in order to evaluate the before and after effectiveness of a risk awareness intervention exercise with the school children. In particular, the survey focused on the communication actions of:

- People’s knowledge and awareness about flood risk, and
- Risk perception as well as participation in decision-making.

The study was carried out starting from the following guiding research issues:

- Can public participation in flood risk management be increased to improve risk communication actions and can these actions improve risk awareness?
- How does risk perception change with communication actions?
- How does trust in institutions change with communication actions?
- How much does the knowledge on technical aspects related to the flood risk of the case study territory improve after communication actions?

**LITERATURE REVIEW**

The notion of risk awareness is very complex: risk is a multi-faceted term, which might be considered differently according to individual and social contexts. Dealing with risk is a complex issue. Slovic (1987) states that risk is the socially constructed sum of hazards and public perceptions. He adds that the assessments of danger, both by technicians and the public, are influenced by political, economic, cultural, and other social factors.

“Perceived risk is an assessment of the probability of an event and its consequences arrived at subjectively by individuals” (Burton & Pushchak, 1984, p. 465). There is a discrepancy between real risk and perceived risk; consequently there is a difference between scientific
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