

Title: Raising risk preparedness through flood risk communication

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Summary of paper and general comments

The paper presents a survey-based evaluation of a flood risk information campaign among potentially affected homeowners in Zurich, Switzerland. The aim of the study is to test and evaluate a) to what extent the flood risk maps (available online) and the sent information material about the flood risk maps increased flood risk preparedness (or the intention to prepare) and b) to analyze the main predicting determinants for increasing flood preparedness. The study is interesting and a good example for the evaluation of a one-way information campaign combining two media (written information material and online source to check property on flood risk map), and in principle the results are well presented. However, while reading the paper I had questions regarding general argumentation and discussion that should be addressed by the authors before final publication:

- The paper introduces risk maps as a tool in the light of key results on risk communication that point on limitations of existing (pragmatic) one-way communication strategies implemented by most public agencies and that recommend two-way, dialogic strategies and information that is better tailored to the user needs. Against this, the main part of the paper is on the evaluation of just one example (flood risk map with information material) of the critically commented one-way strategy based on the assumption “More information = better flood awareness = increases flood preparedness”. In summarizing the findings of risk communication research to delineate the research questions for the presented study the paper somehow seems to be caught in a trap or dilemma, as it opens up questions in the introduction and summary of the current state of the art that cannot be answered or solved by the evaluation study of the flood risk map campaign in Zurich. So it is no surprise that one of the conclusions of the paper is that user-tailored solutions and strategies should be developed. Solutions for this could for example be:
 - o more specific focus in the current state of the art on evaluating effects of risk communication
 - o mention the potential role of flood risk maps as a part of dialogic strategies in the discussion / conclusion of the paper
 - o revisiting open questions raised in chapter 2 in the discussion/conclusion section to link the current state of the art and the conclusions from the empirical findings better.
- 1. Throughout the paper (abstract, results chapter, discussion, conclusion) it is argued that the positive evaluation of the information material is a predictor for increasing flood risk preparedness. While this may be in line with the general approach to treat risk preparedness as the dependent variable, I would like to see a more indepth discussion on the directions of the observed effects. There are several passages that deal with the effect of reading the material (intensity) and evaluation of the material (positive) and having information need as predictors for future flood preparedness. This of course provokes the question if only those homeowners who are already interested or motivated to increase their flood preparedness anyway (and independent

of the campaign) read the material more intense and evaluate it positive -- thus, that the model of dependent and independent variable in the evaluation study could be the other way round in the population.

2. The correlation coefficients and the values of r^2 in the regressions appear to be rather low. It would be good to mention if they are in the same range as in other studies, better, or lower (and why).
3. The language should be carefully checked again (see examples in list below).

Minor questions and suggestions for minor changes:

Abstract:

1. P. 168, line 10 in current form: missing word (?) "to a better understanding OF the factors"

Introduction:

2. P. 169, line 2: "tools for *predicting* natural hazards"... are flood maps a tool for predicting (=when? where? what intensity?). better: tools for mapping / visualizing flood hazard and flood risk information (or something similar?).
3. P. 169, line 12: instead of "sophisticated" better: "technically elaborated"?
4. P. 169, line 14/15: introducing the "levee effect" here at this prominent place in the paper puts a high emphasis on it – the next sentence reads as if only because of this effect risk awareness has to be increased (and not because of the idea of general risk reduction).
5. P. 169, line 16: missing word? "are therefore CONCERNED (?) to raise..."
6. P. 170, line 2-5: here the key questions of the paper are presented. It would be good to add one or two sentences how these were implemented (evaluation of flood risk map campaign in Zurich, questionnaire homeowners, focus on effects of campaign on flood preparedness).

Relevant findings and open research questions on risk preparedness and risk communication:

7. P. 170, line 20-22: sentence incomplete? ("level of preparedness IS LOW(?)")
8. P. 171, line 3 to 12 (and later on in this chapter): I recommend taking a look also at the empirical risk communication studies by Klaus Wagner (now Klaus Pukall).
9. P. 173, line 14: please check sentence ("could... and DISCUSSION them with... "??)
10. P. 173, line 18: "Own research revealed that": missing Reference?
11. P. 175, list of lack of clear results: in my opinion, the reasons for the lack of hazard mitigation behavior or flood preparedness listed are rather general and principal, and could be easily argued against. In addition, it is not clear to me how these "lacks" are addressed by the case study presented in the next chapter. Therefore, I recommend to check if this list is necessary for delineating the research questions for the case study or not.
12. P. 175, line 13-15: The difference of lays' and experts' risk perceptions is an old discussion. It opens up another field in a moment in the paper where you introduce risk maps as the key risk communications format in the Zurich case study and where a lay-experts-discussion thus could be distracting. -> move it to somewhere else in the paper?
13. P. 176, line 12: incomplete sentence? "level OF preparedness"?
14. P. 178, line 7 and 19: here the first time tables A1 and A2 are mentioned. Both of them are important to understand your operationalization and the scales and subscales constructed from the questionnaire items. Thus, to follow your data analyses process and the results, I suggest that tables A1 and A2 should appear in the paper before the

Tables 1 to 3.

15. P. 179, lines 15-18: here data analysis is described in the paper; keeping the chronological order of the research procedure in the paper, data analysis should be presented (as a sub-section?) after “3.2.3 Survey and sample distribution”.

Results:

16. P. 180, line 11: Table A1 again is mentioned first to refer to results, and it would be good if this table could be first in the order of the tables. It provides a first general/abstract overview (mean values, standard deviations) of the results you refer to in the next paragraphs (= half of the results chapter) in a more descriptive way indicating percentages of particular responses to questions in the questionnaire.
17. P. 182, lines 13-17: as only one third of the respondents accessed the flood risk map online, only this third can be assumed as having received the complete information (to gain “factual knowledge”) conveyed in the campaign on the released flood risk map. Did you perform analyses only with this sub-group to evaluate the effects of the campaign in relation to the proportion of information content probably conveyed? Do they for example differ in risk awareness and preparedness from the rest, or in terms of intensity they studied the information material? Proportion of respondents with background in hazards or risk management?

Conclusion:

- P. 193, line 24-26: please make sure that the result that elderly less frequently accessed the flood risk map is mentioned before in the results chapter.