

Interactive comment on “A “Mental Models” approach to the communication of subsurface hydrology and hazards” by H. Gibson et al.

Anonymous Referee #1

Received and published: 26 February 2016

Evaluation:

The study by Gibson et al. describes a really interesting approach to geoscience communication, one which I have little seen in geoscience journal articles to date. The outcomes from the study are both insightful and useful to practicing geoscience ‘experts’ to understand the potential pre-conceptions of a ‘non-expert’. As someone with experience in attempting to communicate contested geoscience topics to the non-expert, the results of this study highlight how failing to consider these pre-conceptions will continue to cause miscommunication when exploring controversial issues. My view is that there are currently few studies out there that geoscientists can readily understand from the work of social science, and this is a great start to moving towards better designed communications. This study will definitely impact on the way I personally communicate and hopefully others too, by introducing specific concepts first before dealing with more

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complex issues.

As a geoscientist reading this paper, with limited understand of social science methods, certain concepts and phrases could benefit from further clarification (see comments). The manuscript may also benefit from some practical conclusions about how these methods can be used by geoscientists in the situations we often find ourselves in; for example public meetings trying to explain a topic that the ‘non-experts’ have little background knowledge of.

Based on my reading of this work I recommend it be accepted pending minor revisions.

General comments:

1. The manuscript is well organised and for the most part clearly written, with some language inaccessible to those not from a social science background.
2. In the introductory section, would it be possible to give an example of how poor communication can lead to a misinterpretation i.e. people’s perceptions of underground rivers and how this leads to a certain perception of risk related to flooding.
3. The example of a mental model (‘travelling down the stairs’) is confusing – who are the ‘expert’ and ‘non-expert’ in this case? Is the expert someone who lives there (who knows they have a cat) and is the non-expert someone who is visiting and doesn’t know they have a cat? Is it the case that the non-expert could fall over the cat because the expert may not have thought to mention it? Needs clarification.
4. Conclusions – how can this work for other geoscientists who may not have time to carry out the whole process?

Technical corrections:

P1 Line 32: Delete first ‘geological’?

P2 Line 44: A sentence on the definition of ‘heuristics’ would be beneficial for geoscientists.

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P2 Line 77: Could you give an example of what 'such messages' might be?

P7 Line 212: Are these semi-structured interviews done one on one?

P7 Line 224: Are there multiple questionnaires produced from the interviews, one for the expert and one for the non-expert?

P8 Line 252: Why did you choose hydrological interactions? Was this highlighted as something to look deeper into after the initial interviews?

P8 Line 260: Amend spacing's between last '1m'.

P9 Line 287: Could you very briefly explain the 'snowball method'?

P13 Line 403: Fig. 3e, do you mean Fig 3c? I can't see any additional annotation on 3e.

P16 Line 529: 'Permeability of water through different rock types' – confusing sentence, makes it sound like the water is permeable, not the formation. Please re-arrange.

Figure 1: Could you highlight the activities mentioned in the text so they're easy to find on the graph, they're difficult to find. And potentially shade in the separate zones to make them clearer.

Figure 3: It might be helpful to label the images expert or non-expert.

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