

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

**H. Gibson et al.**

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Thank you very much for your comments which I will try and address below:

In response to the statement about the influence of formal education as providing a ‘base level of knowledge that scientists can relate to’: I agree, formal education does provide data that the non-expert participant will use in decision making that may be considered more familiar to a scientist, but it is unlikely that that information from a formal educational background will not also be influenced by the participant’s own perceptions of their environment. Thus formal educational experience (to whatever level or degree of participation) is included within the broad description of the inherent cultural and social influences that control participant interpretation of new scientific data. Additional detail has been added to clarify this point (line 93).

C1

In response to the statement about the use of analogy: As the mental models method allows for participants to share intuitive theories in their own words during the interview stage, analogies are included in the model, however the method of the interviews also allows for the interviewer to probe certain statements in more detail if required and as such it is possible to discover if the analogy is covering another perception, or if the analogy represents an actual concept for the participants. As such, the use of analogy is not considered directly relevant to this study, as they are either exposed or incorporated into the model itself. However, additional detail has been added to clarify this point (line 251-252).

In response to the comment for clarification of the expert dismissal of the relevance of lay-knowledge: the sentence has been clarified to preclude individual communications, which do often value local knowledge, and clarify the classification of the non-expert approach as inappropriate in relationship to the study done by Johnson (2008) examining public participation in watershed modelling (line 154-159).

In response to the question about the place of deductive reasoning in decision making: I agree that there are other types of reasoning that are involved with decision making and have clarified the sentence to make this more clear (line 176-178).

In response to the query for more data on how the semi-structured interviews and quantitative questionnaires have been designed: yes, additional information has been provided (line 359-374).

In response to the question about the decision to employ a 3D participatory model: additional detail has been provided to clarify the inclusion of the model (line 271-276). Additionally the use of a computer model would not be suitable for issues of practicality.

Minor comments:

Line 37 change : yes, this has been altered (line 39) Figure 2: yes, the font size has been increased as much as possible (Figure 2)

C2

Please also note the supplement to this comment:  
<http://www.hydrol-earth-syst-sci-discuss.net/hess-2015-542/hess-2015-542-AC2-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2015-542, 2016.

C3

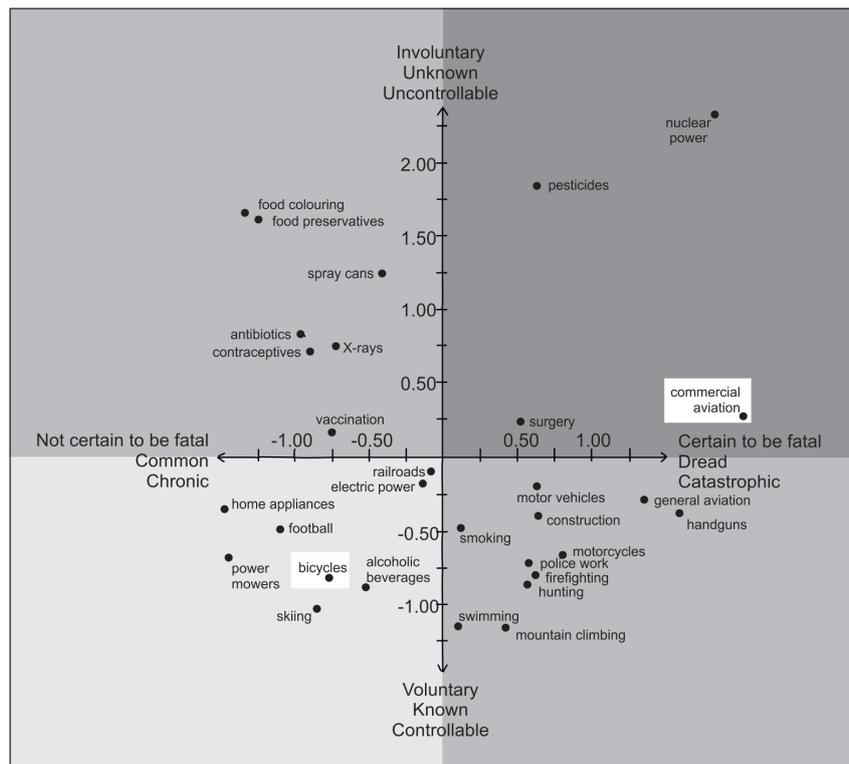


Fig. 1.

C4

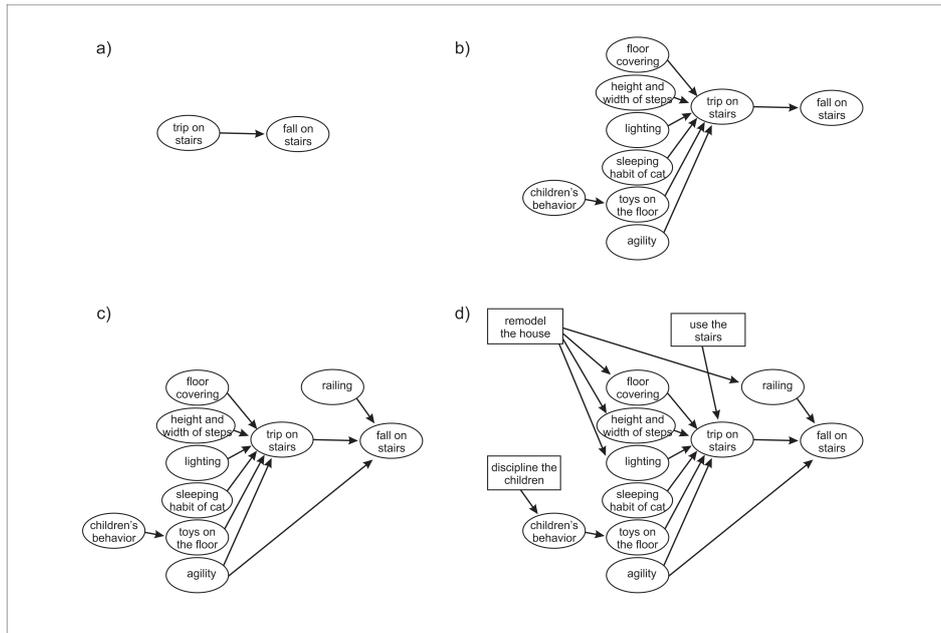


Fig. 2.

C5



Fig. 3.

C6



Fig. 4.

C7

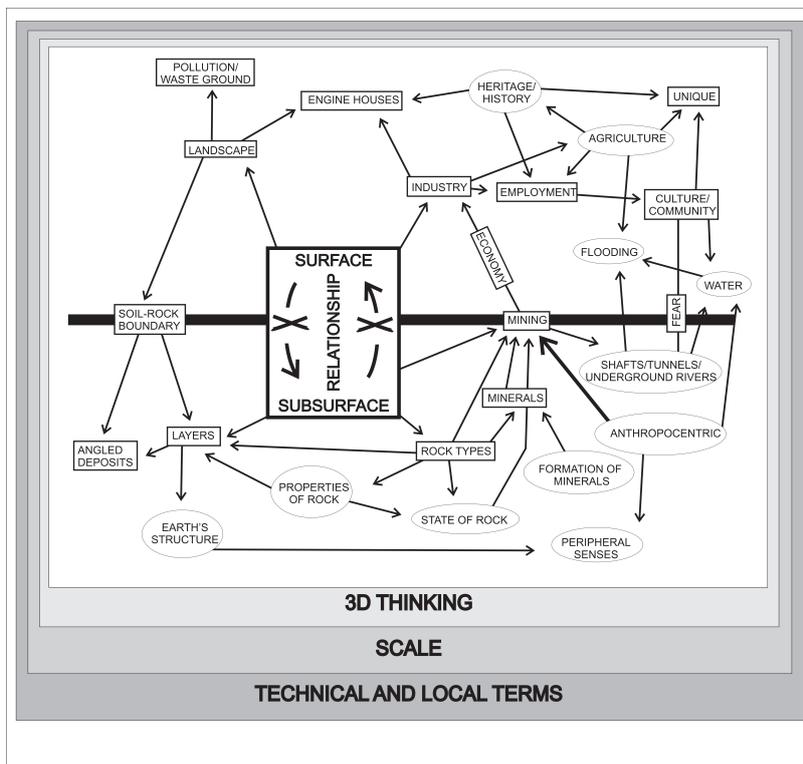


Fig. 5.

C8

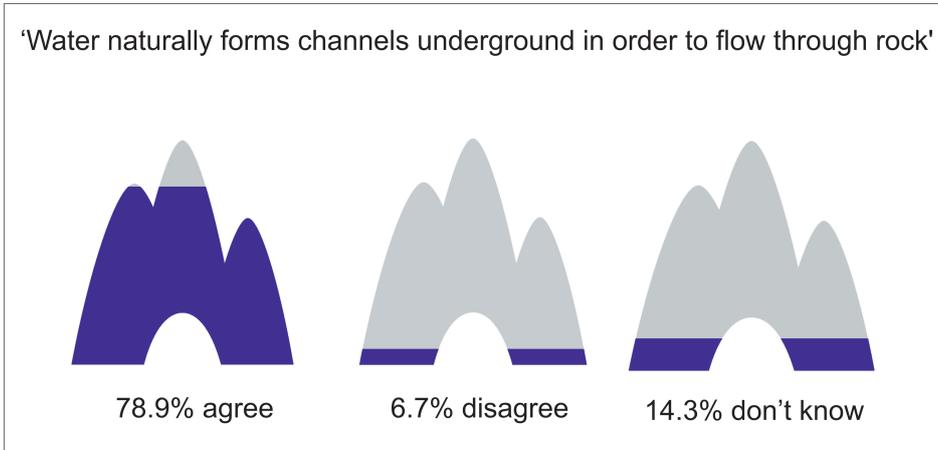


Fig. 6.

C9

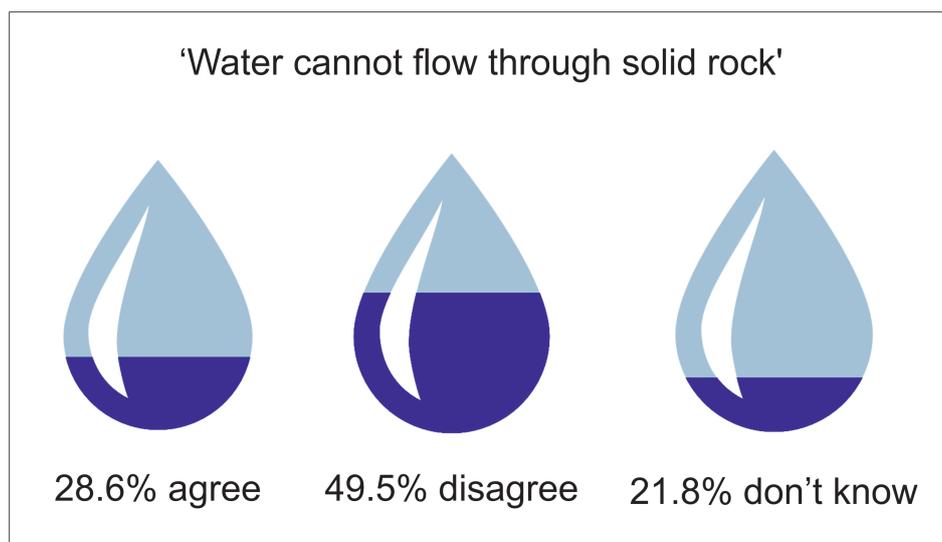


Fig. 7.

C10