

Editorial comments for “The human side of geoscientists: comparing geoscientists’ and non-geoscientists’ cognitive and affective responses to geology.”

This paper is an interesting presentation of frameworks on earth science concepts held by geoscientists vs. non-geoscientists. While many critical factors were commented on by the two reviewers and addressed by the authors, I, as the editor managing this work, would like to ensure the following issues are addressed before publication. Some or even many of these issues may have been addressed already by the authors, but, lacking a full draft of a rewrite to review, it is difficult to evaluate.

Overall, this work may contribute to effective geoscience communication practices by highlighting factors to consider when communicating geoscience with non-geoscientists. I caution the authors against drawing conclusions beyond the scope of this study. For example, I wonder if the outcomes would be different with, for example, a non-geoscientist population that benefits from oil and gas extraction, or a geoscientist population that is focused more on basic research and less on industry.

Specific comments (Page/Line):

12 Evidence for this statement, and does this communication struggle go both ways as stated?

15 delete space before .

18 after (n=38), say where your sample set is from, as it is pretty specific

21 Should be edited from “mental models of non-geoscientists focus more on” to “mental models of **the** non-geoscientists **focused** more on,” as you cannot generalize your findings out to all geoscientists.

22 see comment above for (1/21) and change to “**the** geoscientists **focused**”

23 this human interactions interpretation seems thin to me. Human interactions with... the environment? Or do you mean the role of humans incl. geoscientists...?

23 mental models in general, or mental models of geoscientists vs. non-geoscientists? Be careful to keep your conclusions within the scope of what your study actually addressed.

24 “both **components** need”?

37 understanding

38 you use the term mental models before defining it; you should define it on first use.

38 defined for our purposes, or which we define for this study as – make it clear that you are the ones defining it

41 correct the grammar (need a connecting word after the ,)

43 is the concept of mental models specific to the geosciences?

44 I’m not clear on how these models differ; examples would help

[54 – 72 have been replaced]

73 contribution = goal?

73-80 this would benefit from acknowledging some of the specifics of this study, acknowledging that this study; a study of this limited scope cannot aspire to investigate this issue for all of geoscientists and non-geoscientists in all settings (and indeed, how mental

models vary between different types of geoscientists, different demographics, and communities with different experiences would all be interesting questions to explore)

76-80 introducing an argument in your introduction, rather than posing this idea as a hypothesis or question, gives the strong impression that you entered your study with a preconceived / expected outcome

83-85 again, this needs to acknowledge the specifics of the study

94-95 this is unclear

97 which beliefs?

97-98 subject-verb agreement

98 is there a reference for the qualitative thematic analysis technique?

99 **the** IBM

108 speak to range as well as majority

110 Table 1 – why did you include income and household type?

125 name specific university

133 (n=11), **and**

145 quarrying, and flooding - the Oxford comma will make this much easier to understand (I recommend applying it throughout the manuscript)

147 follow-up

150 is there a word missing?

152-153 is there a word or phrase missing? Or ranging -> range?

154 including flooding? I believe you have taken flooding out of your current draft; if so, ignore comment

159-163 rearrange sentence for clarity

164 (2018), **and**

165 “formed both reliable scales” – unclear what this means

169 Mean (M) and Standard Deviation (SD)

169 use of title case (or not) should be consistent throughout

169 why not list perceived impact and affective responses in the order in which they appear in the table?

170+ reformat table for readability

179 author**s**

184 remove ,

186 indicators, Independent

187 **the** IBM

192 variables ?

195 non-geoscientists **in regard to...**

200 interactions in regards to what?

201 in the sketches only? Or through the sketches and interviews? Here you refer only to the sketches.

217 0.006], **and** more

219 remove ‘ as non-geoscientists refers to the people, not their sketches

221 Fig 1a or just Figure 1?

224 comments **and sketches** ?

227 from **an** anthropocentric

223 remove (Fig. 1b)

240 denoting is probably the wrong word here

240-241 among whom, and in what context?

247 subject-verb agreement

254 is this reflecting different *beliefs* or different *knowledge*? On what do you base the difference in beliefs? It seems that non-geoscientists aren't expressing a difference in beliefs, but rather that beyond a certain point they just don't know. Or are you saying there are different beliefs *within* both groups?

257 quarrying; **and** g,h

264 repeated measures **analysis** ?

264 what does main effect mean? Is this a known social science construct?

267 these are human, not geological processes – this is a significant distinction, as humans play an essential role in drilling and mining/quarrying, where they (we) may play no role in geohazards such as flooding. It's important to consider this in the interpretation of the mental models.

283-284 this seems like a stretch. The physical acts of mining/quarrying and drilling are not research endeavors in the same way that basic research is. They are focused on the human process and not on the Earth process (which would be, e.g., sedimentation, compaction, metamorphism, orogeny, etc., not mining or drilling)

286 again, they are human, not geological, processes

295-300 cannot generalize your findings to all geoscientists; change have to had (x2: 295, 297)

307 negative responses to what?

309 that **the** geoscientists **of our study** have

312 what would geoscientists' affective response have to do with their misperceptions of others? Is there evidence that they do misperceive the affective responses of non-geoscientists?

326 **the** non-geoscientists

326-327 "relate their negative emotions with the negative impact of geoscience on the environment" - unclear what this means

357 do you want to indicate gender?

367 **tended**

368 **tended**

371 acknowledge your sample set, not necessarily indicative of all geoscientists & non-geoscientists in all circumstances

378 evidence? You have not argued this clearly yet

383-384 move reference after "reality"?

394 this is a relatively strong unsubstantiated statement

396-397 why, if they contract with those of non-geoscientists? Clarify your reasoning

398 evidence? You bring the communications arguments in without substantial tie-in to the study or references. Consider statements such as "may benefit from" if you would like to make arguments.

401-402        similarly, this is a very strong statement and referred to as a finding, when this is clearly an opinion; you have not addressed this issue in your study in any way, or if you have you have not made it clear through the description of your work

403-405        Why? Address this.

409        How about any benefits to geoscientists in recognizing the affective component of their mental models? Might it change how they see themselves as keepers of knowledge?

416        This is not a finding; of course, we are all human! Be more specific about what you mean.