

Below, we respond (in black) to the comments by reviewer 2 (in blue):

In this manuscript, the authors examine how personalizing a science text about travel modes and climate change influences participants' attitudes towards climate change and their perception of the writer's credibility. The study reveals that personalization had some effect on participants' emotions but did not significantly alter their attitudes or perceptions of the scientist's credibility. Overall, I found the manuscript very engaging and a thoughtful contribution to Geoscience Communication and the literature. However, adding more nuances to the results and discussion sections would enhance its depth. Below are my comments, which I hope will be helpful to revise your manuscript for publication.

We thank the reviewer for this positive assessment and clear summary of our work. We agree that these comments will help us enhance its clarity and impact.

General comments:

1. It would be beneficial to expand the discussion on scientists expressing their opinions. While you introduce this concept on lines 58-70, revisiting it in the discussion with additional insights would be valuable. Often, scientists are guided by their institutions to avoid taking official stances. Given the urgency of the climate crisis, should scientists feel more comfortable advocating, and should we train future scientists to do this more effectively? Additionally, should workplaces support this type of communication, or should it be left to climate communication experts?

This is a major topic that the reviewer addresses here; one that would warrant its own article/essay. In fact, we are currently working on such a manuscript. We would thus prefer to leave the deeper discussion on the moral evaluation of advocacy out of this specific manuscript.

2. Why was the personalization conducted in two steps instead of comparing a single personalized version to the original? This approach would have increased the sample sizes for each group. Please provide an explanation in the manuscript to clarify the rationale behind this methodology.

The reviewer is right that in hindsight we could have used only one changed version of the text. However, when we set out to study the effects, we didn't expect them to be so small. We created two versions because we wanted to explore whether second-person voice was already sufficient to create an effect. In the revised manuscript, we will clarify that by adding "[...] as we aimed to separate the potential effect of the second-person voice from the first-person voice" to the first sentence of section 2.2.

3. Language use, including expressions and humour, is highly dependent on cultural context. A personalized text effective in one language would require careful translation to capture these nuances for different populations, whereas a more

expository text might not need the same level of adjustment. Could you discuss this consideration in the manuscript?

Based also on the comments by reviewer 1, we will highlight in the revised manuscript that “Dutch is very similar to English (they share linguistic roots and numerous similarities in vocabulary, grammar, and syntax), we expect that our results are generalizable to English too”.

4. I couldn't find the appendix.

We indeed missed uploading the appendix files. We will do so in the revised submission.

5. Much of the content in section 2.4 seems more appropriate for the results section. Please consider moving this material to a sub-section of the results.

We had indeed considered that but feel that this part about the participants background fits better with the methods section. We therefore prefer to keep it here.

6. The results section could benefit from more detailed description in places. Firstly, some results indicate statistical significance between groups without specifying the direction of the effect. For example, on lines 211-213, we know that there is a difference in responses regarding the writer's perceived credibility, but it is unclear how prior likelihood to fly or science capital and trust (SCT) influence these responses. Similarly, this applies to lines 184-186 and 234-236 (please review for other instances). Secondly, even when results are not statistically significant, I think that it would still be useful to describe them qualitatively, clearly distinguishing between statistically significant and non-significant findings. For instance, regarding SCT on responses to control questions (Fig. 3), although not statistically significant, there is a qualitative difference where a higher percentage of participants with higher SCT found the texts professional/formal. Despite the sample size limiting the detection of small differences as you mention in the discussion, these can still be qualitatively appreciated. Adding such qualitative descriptions throughout the manuscript would highlight nuances not currently captured in the text but shown in the figures. Please consider discussing such subtleties, future research directions, and hypotheses for further studies with larger samples to explore these minimal effects more thoroughly.

This is a good comment. In the revised manuscript, we will add the direction of these statistical differences in the text (although they mostly are also visible in the figures). We prefer not to discuss all the non-significant differences because 1) it would make the text very long and cumbersome to read and 2) these can much more readily be assessed in the figures than from a (long) text.

We do agree with the reviewer that the subtle effects could be borne out with a larger sample size and will add a statement about that in the revised manuscript:

"A larger sample size might make some of the more subtle, non-significant details in the Figures more pronounced."

7. I find the question in section 3.3 about whether the text aims to persuade or inform intriguing, but it should be introduced earlier in the manuscript for better context. Additionally, the impact of participants' SCT on their perception of the writer's impartiality (second question) is not discussed, warranting further exploration in the discussion section.

We prefer to discuss the questions in the order in which we exposed them to the participants, so like to leave it where it is in the results section. In the revised discussion section, we will add the sentence "Participants with high Science Capital and Trust more strongly perceived the goal of the writer to provide impartial information; compared to participants with lower SCT."

8. Participants' prior knowledge (and possibly trust) of the KH platform and the writer's name could have influenced the results. Was this information provided to participants before they answered the questions? Clarifying this could help understand its impact.

We have not checked whether participants had prior knowledge and trust of the KlimaatHelpdesk platform but can expect that only very few of them had visited it before (the KlimaatHelpdesk is not yet that well known). The author of the text is even less known in the Netherlands, so we don't expect there to be a prior trust issue there. In the revised manuscript, we will highlight this in section 2.3.

Specific comments:

9. L18: It would be useful to provide a brief description of the word "attitude" in this context as it is very broad, perhaps using the text in between parentheses on L76.

This is a good point; we will add "(specifically interest and opinion)" to the revised manuscript here.

10. L20-22: This sentence talks about strengthening the link between climate information and action. There needs to be another sentence before that to discuss the existence of that link. Could you cite some literature that discusses the impact of (climate) information for changing attitudes and possibly actions?

This link was (implicitly) inferred in that same sentence, but we will make it explicit in the revised manuscript: "[...] Dong *et al* [2018] found that there is a positive relationship between climate information and action, and that it can be strengthened by [...]"

11. L25-31: I find that this more methodological piece would fit better later in the introduction, once the research questions have been introduced. Where it stands, it disrupts a bit the flow of a very interesting and broader introduction.

This is a good point by the reviewer. We will move this paragraph on IMPACTLAB to after the research questions in the revised manuscript.

12. L32: There is no section 1.1.

We will remove the subheader to section 1.2 in the revised manuscript, so that the introduction is one continuous section.

13. L50-51: You already mentioned that attitudes affect climate action in the first sentences of the introduction. Perhaps rephrase this sentence slightly to incorporate it with the previous sentence and remove the repetition.

This is a good point by the reviewer. We will remove this sentence in the revised manuscript.

14. L99-100: Could you include the full second sentence of the text so that it is a bit easier to interpret the meaning and changes made? Same for conditions 2 and 3.

In the revised manuscript, we will add the rest of this sentence: "[...], because NS and Deutsche Bahn operate mostly on wind energy, and the Swiss railways on hydropower."

15. L116: Did all participants live in The Netherlands?

We can't be certain as we didn't ask that and don't have IP addresses; but given that the survey was in Dutch and distribution via a Dutch website, we assume so.

16. L117-118: Why was the focus on young adults specifically? Please clarify this choice in the manuscript.

In the revised manuscript, we will better clarify that young adults are the target audience of the KlimaatHelpdesk.

17. L121: Does "M" in the parentheses refer to mean or median? This could be written out for clarity and to match the format in section 2.4.1.

Indeed, M refers to Median. We will write this out in the revised version

18. L122: What are the results from the educational level? It is only mentioned in the discussion.

We will add in the revised manuscript that more than 50% of the participants finished higher education.

19. L123: Will the questions be available in the appendix?

All questions are literally in the figures, so we don't think we need to also provide them in the appendix.

20. L127: This is the first time that the word "behaviour" is used in the manuscript. It would be useful to have a brief description of what you mean, and how it situates itself within the attitude, opinion, and action pieces you already mentioned earlier.

Behaviour in this case is simply what they have done before (how many holidays, and how many of these were by plane), but we understand this is confusing. We will therefore change "behaviour" to "conduct" in the revised manuscript.

21. L129-130: Remind us here that the trip from The Netherlands to Milan is the example from the KH text you use - I had forgotten it.

In the revised manuscript, we will add at the end of the sentence that this was the topic of the KlimaatHelpdesk text used in this study.

22. Fig. 1: Could you explain the format of the upper panel in the text and/or in the figure caption so it is easier to understand and interpret this and future figures? It took me a little while to understand at first as I am not used to this type of graphic, with the zero in the middle splitting positive and negative responses.

In the revised version we will add to the caption that "The upper panel uses the `plot_likert` python package to visualise the number of participants that have given each of the five respective answers; centered around the Neutral (Likert-score=3) value."

23. L151: Could you give a brief description of what the Cronbach-Alpha score measures and its range, so we can interpret the alpha value?

Following also the comment from reviewer 1, we will add that Cronbach-Alpha measures the internal consistency of these six statements and added a reference to Heo et al [2015].

24. L154: You introduced the concept of "effect" in the introduction but I think it would be useful to write it out as "change in attitude" or something similar that

is a bit more descriptive so we easily understand. Same for the title of section 3.1, which could be a bit more descriptive.

We will change this to “difference for” in the text in section 2.4.2 and change the title of section 3.1 to “Change in attitude.”

25. Fig. 2: Add the corresponding values for each Likert scale statement in the legend so we know what a score of 4/5 means, and perhaps clarify in the text. I assume 4 corresponds to “agree”, but it would be good to be sure.

We will add the Likert scale values to the legend of Figure 2.

26. Fig. 3: Please remind us in the caption that SCT above/equal or below 4 refer to participants with high or low SCT respectively. Same comment for Fig. 4-8.

The caption to these figures also mentions that “score on Science Capital and Trust (right column; higher or lower than 4 out of 5)”; we think this is clear enough.

27. L195-199: I’m curious, did you also look at the effect of prior likelihood to travel by train vs. plane on changes in the participants’ opinions on flying or train travel?

We had indeed investigated that but found no difference in whether the participant’s opinion had changed between those that were likely to take the plane and those who weren’t. We will add a comment about that in the revised section 3.1.

28. Fig. 5: I think you could remove 3 out of the 4 legends as they are all the same.

We will remove the legends from all rows but the first one, to reduce clutter.

29. L213: Please specify that the results separated by likelihood to take the plane are not shown.

We will add to the revised manuscript that this is not shown to the text

30. L250-251: This should be mentioned in the results section as well. Same for L271-272.

We will add statements that “more than 60% of the participants experienced the texts as relatively formal and professional (score <6)” to section 2.5 and “the strongest positive response was on emotion, with >60% of the participants finding the texts interesting” to section 3.1.

31. L254-255: It could also be an additional explanation, and not necessarily an alternative.

We will change "Alternatively" to "Additionally"

32. L259-260: It did change the opinions on flying vs. train travel of some of the participants. Please rephrase or mention the subtlety as per general comment 6.

We will rephrase this to "reading the texts did not change most of the participant's opinions on flying or train travel,"

33. L275: Could you remind us here what RQ2 is, as you do for RQ1 above.

We will add the second research question here

34. L279-280: This is also what you showed with Fig. 2.

We will add a reference to Figure 2 here

35. L299-302: Please mention the figure in the methods section as well.

We will add a comment that all three versions included a fairly technical figure in the first paragraph of section 2.2.

36. L308-309: This is not really what you show though. Please rephrase.

We will remove the sentence that "in general, one text exposure cannot be expected to result in any major shifts in opinion on travel either by plane or train", as we indeed did not explicitly test for that.

Technical corrections:

37. L39-41: This sentence needs rephrasing.

We will rephrase the start of this sentence to "One such element is personalisation ..."

38. L52: I would personally prefer using words like "climate mitigation and adaption" instead of "the fight against climate change", but I understand that this is a personal choice.

We will rephrase this indeed to climate mitigation and adaption

39. L182: Remove "were" or add "that" before it.

We will remove "were"

40. L212: "significantly differently". Please check for other instances in the manuscript.

We will change to "differently" here and on other occasions

41. L212-213: "very" is missing in front of "intelligent" and "trustworthy".

We will fix this

42. L234: Should "strongly" be "fully", as per the Fig. 8 legend?

We will change this to Fully now

43. L271-272: Rephrase to "most participants (>60% for all three conditions) found the text interesting, felt calm, [...], and annoyed". Otherwise it's not clear that the >60% applies to all these emotions.

We will change this in the revised version

44. L277: Missing "of" before "sensitivity".

We will fix this

45. L279: Missing "a" before "reflection".

We will fix this

46. L281-282: Missing "perceived" before "more personal".

We will fix this

References

Dong Y, S Hu and J Zhu (2018) From source credibility to risk perception: How and when climate information matters to action. *Resources, Conservation and Recycling*, 136, 410-7

Heo M, N Kim and MS Faith (2015) Statistical power as a function of Cronbach alpha of instrument questionnaire items. *BMC Med Res Methodol*, 15, 86