

Updated Review Report by Theresia Bilola

Manuscript: 'Quantifying the Impact of Skeptical Science Rebuttals in Reducing Climate Misperceptions'

Authors: John Cook et al.

Note

As someone with a science to policy communication focus, I find the research particularly compelling but I also recognize my tendency to focus on practical implications and messaging strategies may limit the depth with which I engage with the more technical psychological underpinnings of the study.

Overall Recommendation

The paper has improved significantly in clarity, framing, and ethics. While some limitations remain (interpretive caution, engagement measurement, lack of qualitative data), these are acknowledged. The study offers practical insights for climate communicators and makes a meaningful contribution to the literature.

Final Recommendation: *Accept with suggestions for minor revisions*

Suggested minor changes:

- Consider making figure labelling more explicit (especially Figures 4 and 5: clarify what 'positive values' represent).
- Consider tightening the speculative statements about visitor motivations in the discussion.

1.) Scientific Significance

This paper addresses a timely and important question: how effective are online rebuttals in reducing climate misinformation? The use of a large, real-world dataset collected from website visitors is a major strength and adds credibility. The study applies well-established theories like inoculation and discernment in a practical context, which is valuable. While the approach is innovative, the conceptual leap is moderate, it builds on existing frameworks rather than introducing new theory. The revised discussion now connects the findings to broader debates in science communication (e.g., deficit vs. dialogic models), which is a welcome improvement.

2.) Scientific Quality

The design is solid: randomized exposure, pre/post testing, and clear documentation of methods. Statistical analyses are appropriate, and the authors have clarified effect sizes and key terms in the revision. Ethical concerns about IP addresses have been addressed with an IRB statement and anonymization details. The discussion is balanced and acknowledges limitations like sample bias and engagement measurement. Speculative claims about visitor motivations are now clearly qualified, which is good. The addition of references to deficit model and inoculation theory strengthens the scholarly context.

3.) Scientific Quality

The manuscript reads well and is logically structured. The figures are helpful. However, Figures 4 and 5 could still use clearer labelling (e.g., what 'positive values' mean). The terminology is now more consistent and the introduction is more focused with the research question clearly stated. Jargon has been reduced and the language is professional and accessible. Some sections remain dense with technical detail, but overall, the presentation is strong.

Thank you for your thoughtful revisions. They have strengthened the paper considerably. The introduction is clearer and the research question is well stated. The added discussion on the deficit model and inoculation theory as well as the clarification of ethical compliance is well appreciated.

Overall, this is an important and timely contribution to climate and geosciences communication research. Well done!