

Countering misinformation about climate change among climate skeptics

Ruud Koolen¹ and Gijs van Dijk¹

¹Department of Communication & Cognition Tilburg University
¹R.M.F.Koolen@tilburguniversity.edu, ²gijsvandijk96@gmail.com

Keywords: misinformation, climate skepticism, inoculation, debunking

The societal debate about anthropogenic climate change (ACC) is largely influenced by the spread of misinformation: false information about ACC that sometimes comes from honest mistake or knowledge deficit, but more often is intended to deceive the audience (Treen et al., 2020). Misinformation that is being perceived as truthful is problematic, as it may elicit emotions such as panic, suspicion, fear, worry, and anger (Karlova & Fisher, 2013), increase polarization, and make people more skeptical towards ACC (Sapiains, Beeton & Walker, 2016). Since skepticism is a driver for even more false information, there is a call for positive communication tools to reduce the impact of misinformation.

This study examines the separate and combined effects of inoculation and debunking on the truth perception of misinformation about ACC. Inoculation is a technique where people are warned against the threat of misleading information that will follow (forewarning), and that provides receivers with specific content to counter the false information *before* they take it in (pre-bunking). Debunking is done *after* exposure to misinformation, where false information is corrected based on solid argumentation.

Both inoculation and debunking can be applied in a more general manner, but also in detailed ways. The difference lies in the specificity of the information that is provided before and after exposure to the false information. While there is evidence that both inoculation and debunking can have a positive impact on the truth perception of people that are not skeptical about ACC (Lewandowski & Van der Linden, 2021; Chan et al., 2017), the current study investigates: 1. What happens when inoculation and debunking are combined; 2. What levels of detail are most optimal to affect truth perception; and 3. If inoculation and debunking have the potential to affect not only non-skeptics, but also people that are skeptical about ACC.

We conducted an online survey experiment with a 3 x 3 design. The independent variables were inoculation (none / general / detailed) and debunking (none / general / detailed). Participants (n = 308) were scored on their level of climate skepticism; randomly assigned to one of nine conditions; and then exposed to three Facebook messages containing false information about ACC. The dependent variable was truth perception, defined as the extent to which participants perceived the ACC message as being true. Truth perception was measured with five items on a 5-point Likert scale. Note that inoculation and debunking were effective when the scores for truth perception were low.

The statistical analyses showed interesting interactions between inoculation and debunking that were different for skeptics and non-skeptics. For non-skeptics, it did not matter significantly if inoculation or debunking was applied, or in what level of detail: they scored low on truth perception in all scenarios. However, for skeptics, the pattern was different: for them, truth perception was lowest in the case of detailed inoculation without debunking. When combined with general or detailed debunking, the effect of detailed inoculation disappeared. Our findings show the potential of inoculation to counter misinformation about ACC, even among climate skeptics.

References

- Chan, M., Jones, C., Hall Jamieson, K., & Albarracín, D. (2017). Debunking: A meta-analysis of the psychological efficacy of messages countering misinformation. *Psychological science, 28*(11), 1531-1546.
- Karlova, N., & Fisher, K. (2013). A social diffusion model of misinformation and disinformation for understanding human information behaviour. *Information Research, 18*(1), paper 573.
- Lewandowsky, S., & Van Der Linden, S. (2021). Countering misinformation and fake news through inoculation and prebunking. *European Review of Social Psychology, 32*(2), 348-384.
- Sapiains, S., Beeton, R., & Walker, I. (2016) Individual responses to climate change: Framing effects on pro-environmental behaviors. *Journal of Applied Social Psychology, 46*, 483-493.
- Treen, K., Williams, H., & O'Neill, S. (2020). Online misinformation about climate change. *Wiley Interdisciplinary Reviews: Climate Change, 11*(5), e665.