

Peer-review report of

Prike, T., Holloway, J., & Ecker, U.K.H. (2024). Intellectual humility is associated with greater misinformation discernment and metacognitive insight but not response bias. *advances.in/psychology*, 2, e020433. <https://doi.org/10.56296/aip00025>

Round 1

Dear Authors,

Thank you for submitting your intriguing manuscript to our special issue. I was fortunate to receive reviews from two experts on the topic of your manuscript, and I am grateful for their exceptionally detailed and constructive feedback. As is standard procedure, I read and evaluated your manuscript myself before considering their evaluations.

We all recognize many strengths in your work. The application of SDT and the significant goals of your research are commendable. Additionally, your paper is generally well-written and engaging. However, there is room for improvement. I will not reiterate the reviewers' points here, as they have thoroughly and actionably detailed each one. Please address their feedback comprehensively in your revision, and include a revision letter explaining how you have addressed each point, with specific excerpts highlighting the changes made.

In addition to the reviewers' comments, please address the following:

1. One of the important findings in your research is the minimal evidence for response bias. Could this finding be integrated into the title?
2. Please specify the type of test specified in your power analyses, in addition to detailing how the effect size was derived, as noted by one of the reviewers.
3. You alternate between describing your study as correlational and experimental. Please consistently refer to it as correlational.
4. Provide a more detailed description of the calculation of the d' (d-prime) function for d and C so that readers can immediately understand their rationale.
5. Phrases such as "but intellectual humility is not associated with response bias" should be revised to "not statistically significantly associated," unless you directly test the null hypothesis. I suggest directly testing the null hypothesis, as the potential null effect concerning response bias is important to your general arguments.
6. Your conclusion section should focus more on the main contribution of your research.
7. There is a small formatting issue in your description of measures. The heading on page 9, line 9, and other places, contain bracket issues.

Thank you again for submitting your compelling manuscript to our special issue. Your paper already makes an important contribution, and by addressing these

comments, you should be able to enhance its robustness and impact even further. You are currently under the 5000-word limit for research articles. You may require additional space to address the reviewers' and my comments. Therefore, I am granting you an extra 2000 words if needed. I look forward to receiving your revised manuscript within a month (i.e., within end of June).

Best regards,

Jonas R. Kunst

Reviewer 1:

This article examined the relations between intellectual humility (and AOT) and truth discernment on a fake news task. The authors also examined, using SDT again, whether intellectually humble individuals could also detect when they were accurate. Overall, this study is interesting and relevant. However, I have some large concerns about the methodology employed (particularly in terms of the measurement) and the lack of interpretation in the discussion. I think the authors can take another stab at this, but it will require some heavy lifting.

Abstract

1. The authors write that their findings “suggest intellectual humility reduces misinformation susceptibility via...”
 - a. This is a correlational study, so the authors should not employ causal language like this throughout the manuscript (in less in the context of a future direction).
2. I am not familiar with the term “metacognitive discernment” – can the authors define in the abstract?

Background

1. I find the opening to the background to be a bit jarring – it jumps right into the study design. The paper would be more cohesive and easier to follow if the authors open with the theory and context and save all information about the study for the present investigation section.
 - a. Also, on p. 4, the authors discuss how they include measures allowing for type-2 SDT analyses – again, this should be saved for a present investigation section.
2. The authors likely do not need to review the AOT-E when introducing intellectual humility – it muddies the waters.
3. When the authors introduce conspiracy theories alongside misinformation, they should briefly discuss how these terms are related but separable.

a. In general, the authors should define fake news, misinformation, and conspiracy theories.

4. The correlational results reviewed on p. 3 do not establish that intellectual humility is a protective factor. If intellectual humility is protective, it should attenuate the relations between risk factors and misinformation receptivity. The authors should change this phrasing.

5. I think the distinction between response bias and discernment is an important one. The authors should walk through this point more. Why would a correlation with response bias be problematic? What might this suggest?

6. The authors should also elaborate why assessing type-2 SDT would provide evidence of convergent validity for intellectual humility measures.

a. And, why is this more compelling than previous studies using SDT to understand intellectual humility?

7. In Bowes et al., 2023, they also used SDT on a bullshit receptivity measure. Those findings seem relevant for this paper, given the analyses used and also that bullshit receptivity predicts misinformation receptivity.

8. What do the authors mean, on p. 7, when they say “because of the metacognitive components of intellectual humility”? Is this implying differences across measures or dimensions? More information is needed here.

Methods

9. The authors need to report the demographic breakdown of political identities, given the nature of the stimuli used.

10. Why did the authors pre-select highly shareable headlines? This might bias the stimuli set. Was this for plausibility reasons? If all headlines are highly shareable, will this not lead to restriction of range?

11. I find the instructions for the task to be concerning. By telling participants that the goal is to find true and false information, this is essentially providing an accuracy nudge, which we know is an intervention for misinformation susceptibility. What was the rationale for departing from standard instructions? Why employ an accuracy nudge in an individual differences study? These instructions alter the interpretability of the findings and the conclusions.

a. Roozenbeek, J., Freeman, A. L., & van der Linden, S. (2021). How accurate are accuracy-nudge interventions? A preregistered direct replication of Pennycook et al.(2020). *Psychological science*, 32(7), 1169-1178.

b. Pennycook, G., & Rand, D. G. (2022). Nudging social media toward accuracy. *The Annals of the American Academy of Political and Social Science*, 700(1), 152-164.

12. The willingness to report the judgment item is vague – willingness to report to whom?

13. I am not convinced that sharing intentions reflect metacognitive discernment. Motivations to share fake news differ from motivations to be accurate. It is possible that intellectually humble individuals did not share their rating for other reasons besides awareness of accuracy/considerations of accuracy.

a. Although participants were told they were not sharing the news itself, commenting on the veracity of the news publicly still entails different sets of motivations.

b. That is, how do the authors know this measure reflects metacognitive discernment? How do they know intellectually humble individuals made this decision because they were thinking about accuracy?

14. Why did the authors use the measure of AOT-E as a measure of intellectual humility? These are not the same constructs and should not be treated as such (as this is the jingle fallacy).

a. The authors try to justify this choice on p. 9, but AOT is not intellectual humility. The authors should not refer to it as intellectual humility.

b. Indeed, an item like “people should always take into consideration evidence that goes against their opinions” is certainly not intellectual humility. Intellectual humility refers to considering evidence when it is epistemically appropriate to do so – I don’t think an intellectually humble person would invariably strongly agree with the above statement.

15. The Alfano scale is not an interpersonal measure of intellectual humility – its dimensions capture intrapersonal and interpersonal aspects of intellectual humility. So, it should not be categorized as an interpersonal measure.

a. The OM subscale in particular is not an interpersonal measure. It reflects a blend of intrapersonal and interpersonal processes.

b. A dimension such as Respect for Others’ Viewpoints from the Comprehensive Intellectual Humility Scale (Krumrei-Mancuso & Rouse, 2016) would be an interpersonal measure of intellectual humility (at least certain features of it).

16. The authors need to provide additional information on the collapsed intellectual humility scale. What are the average inter-item correlations? What is the internal consistency? Was there evidence for unidimensionality? What are the inter-scale correlations?

Results

17. Why is a response of 3 classified as a true response? Wouldn’t this be a neutral response?

18. The figures should be moved to immediately proceed the in text reference to them.

19. The axes on the figures should be the same – for instance, the GIH goes from 0 to 4 on the x-axis but OM goes from 0 to 6 on the x-axis. The ticks are different on

each figure too (separated by 1 for the GIH but separated by 2 for OM and AOT-E). It also looks like 0 is meaningless for the AOT-E and OM? Perhaps standardizing the results would make the figures more interpretable.

20. The interpretation that “some aspects of intellectual humility, such as the awareness of one’s own fallibility...” on p. 16 is not entirely correct. The GIH captures more than the awareness of one’s own fallibility.

Discussion

21. Was intellectual humility associated with reduced misinformation susceptibility? The authors do not show that intellectual humility is related to less belief in false news (only to more discernment).

a. The authors do not show that reduced misinformation susceptibility was due to improved abilities to discern. This was not a mechanism paper. The authors need to be careful in their use of causal and mechanistic language.

22. In claiming that intellectual humility may reduce the likelihood of passing on false information (p. 20), was there a negative correlation between intellectual humility and sharing false information?

23. The discussion is very anemic. There is little to no interpretation of the results nor is there a future directions section. These interpretations and descriptions of future directions are essential – otherwise the discussion is just a recapitulation of the results. I am left without an understanding of why this study is important and what it sets the stage for.

Minor comments

24. Sometimes intellectual humility is written as “intellectual-humility”. There should be no dash.

25. The authors should catch when they say things like “protect against misinformation”. It doesn’t make sense to say misinformation in this context but rather it should say something like “misinformation susceptibility” or “belief in misinformation”.

26. Awkward phrasing (not an exhaustive list):

a. On p. 4: “recent years have seen it increasingly applied to....”

b. On p. 12: “classed as” should be “classified as”

c. On p. 19: “significantly more positively correlated” should be “more strongly correlated with”

Reviewer 2:

This manuscript explores the relationship between intellectual humility, fake news discernment, and metacognitive discernment, specifically focusing on how well individuals distinguish between true and false news headlines and whether they

choose to report or withhold their judgments. The study employs multiple measures of intellectual humility as well as a signal detection approach. The manuscript is well-written and exemplifies good open science practices. The ideas are clearly explained, and the progression of concepts is easy to follow. I particularly appreciate the use of signal detection to analyze responses to fake news-style tasks, as this approach is greatly needed in the misinformation literature. However, I do have some concerns and queries for the authors.

In the introduction, the authors use the term "misinformation" somewhat synonymously with fake news. While they acknowledge other forms of misinformation in the discussion, I would prefer to see a precise definition of the term and a mention of the various other forms of misinformation in the introduction too.

The relationship between metacognitive discernment and intellectual humility is presented both as a correlation of theoretical interest and as a means of validating the intellectual humility measures. I find this dual framing somewhat confusing. It seems to me that the relationship is either theoretically novel or that the two constructs, by definition, measure the same thing, in which case it would be more appropriate for assessing construct validity. Additionally, I find the latter less convincing given the relatively small correlation between metacognitive discernment and intellectual humility. Could the authors clarify their reasoning here?

A key limitation of this paper is its purely correlational design, which precludes any conclusions about a causal connection between intellectual humility, misinformation discernment, and metacognitive discernment. This does not preclude the paper from publication, and the authors do mention this limitation in the discussion. However, they could elaborate further on this limitation and/or conduct additional tests to help their case. There is always the possibility of a third variable underlying both the predictor and the outcome. The authors could suggest what these variables might be, if any, and how this limitation might affect the conclusions. For example, can these correlations be explained simply by higher levels of education in general? Additionally, the authors could run regression analyses with control variables if they have these data (e.g., education, political orientation) that could help rule out alternative explanations. Are there any control variables in the data that the authors could use to address this issue?

As far as I can tell, this study wasn't preregistered. Could the authors elaborate on why there was no preregistration?

In the participants section, the power analysis indicates that the sample was enough to detect small effects ($r = 0.2$), but it is not clear why this effect size was chosen. Was this based on prior studies or on another benchmark?

I was unclear about the social media environment in which the fake news task and reporting/withholding decisions took place. Can the authors clarify the task in more detail, and perhaps even provide a figure displaying what the task looked like?

Multiple analyses were conducted to test the hypotheses. Did the authors correct for multiple tests? Why/why not?

The authors used a 6-point scale for rating news headlines, which was then dichotomized into a binary response: true or false. Why did the authors use d' instead of Area Under the Curve (AUC) given the 6-point scale? I'd like to see the relationships between intellectual humility and the AUC, and these could potentially be included in the supplementary materials. I doubt the findings would change, but it is a more sensitive measure because of the multiple decision thresholds on a 6-point scale.

Related to this, there is confidence data to be derived from the 6-point scale that could provide additional insights. One might expect that individuals high in intellectual humility (IH) would be less overconfident in their judgments. Confidence data could, therefore, potentially be used to validate the IH measures. Are those higher in IH more confident in their judgments overall, but not overconfident relative to their accuracy (d')? These kinds of analyses are worth conducting.

The study includes three measures of IH, but they may not necessarily be measuring the same construct. It could be argued that GIH is a purer measure of IH, while the other two measures are more related to updating beliefs in light of new evidence. The authors provide a theoretical rationale for why they all fit some definition of IH. However, differences in the results suggest a possible dissociation. For example, GIH is the only measure related to a conservative metacognitive response bias, and the other two measures are more strongly related to misinformation discernment. I would like to see more data supporting the idea that these measures are all assessing the same construct. Correlations between the three different measures and a factor analysis would be helpful. There could also be more discussion of the validity of these measures in the discussion section.

I'd like to see a summary table for type 2 d' just as there was for type 1 d' .

Once again, I think the manuscript is well-written and the signal detection analyses are interesting and novel. I hope the authors can improve the manuscript based on my comments here.

Round 2

Dear Authors,

Thank you for submitting a greatly improved manuscript. The reviewers were content with your changes, and I look forward to accepting the manuscript pending a set of minor, cosmetic changes. Please address these and the two remaining comments by Reviewer 2.

1. In the demographics, please change “females” to “women” and “males” to “men” in line with APA7.
2. The citation report shows few minor inaccuracies (mostly typos in references):
https://drive.google.com/file/d/11IWTEMUwO-W3fDMt_B0ZIWVNWmloVK9f/view?usp=sharing

Please address these.

3. Please provide all graphics as SVG files inserted into the word document to ensure high, lossless resolution.
4. In the abstract, it is great that you define response bias, but could you refine it even a bit more to “(e.g., tendency to label headlines regardless of their veracity as false or withhold responses)”?
5. Some minor linguistic issues:
 - a. In the first sentence, I believe “pose” should be “poses” as it refers to “the spread.”
 - b. Please italicize scale endpoints (e.g., *strongly disagree*) in text.
 - c. Please do not present references in headings (re instruments). Rather present in the text of the respective section.
 - d. Present alphas either for all measures in text or for all in the table. Currently, only one is presented in text and the rest in the table. Add a sentence in the text guiding readers to the table for reliability estimates (if you keep them there).
 - e. On p. 14, “(Mandrekar, 2010)” should be “Mandrekar, 2010)”
 - f. p. 15, there is a missing space before the sentence starting with “There were no significant...”

- g. Make sure to always capitalize “Type” as in Type-1 etc. There are some minor inconsistencies.
- h. The Conclusion heading should be centered as it is level 1.

I think these changes should not take much of your time and I hope you can submit them within 2 weeks. I do not plan to send out the article for further review and will make my final decision following these last changes. Thank you again for submitting this important work.

Best,

Jonas R. Kunst

Reviewer 1:

I have reviewed the authors response to the first round of reviews. I think the changes they’ve made have significantly improved the manuscript and adequately addressed my queries and concerns. I have no additional comments to make.

Reviewer 2:

The paper is much improved! The introduction is more streamlined and clear. The discussion section is robust and interpretable. The updated analyses are helpful. I think this paper makes an interesting contribution.

Two very small things.

1. When the authors provide definitions for constructs like misinformation or fake news, it would be helpful to provide the reference alongside the definition.
2. It would be helpful for the authors to do a final pruning for phrases like “protect”, “misinformation” (vs. misinformation susceptibility), and causal language. I still noticed some of these throughout the manuscript (particularly p. 2).