January 15th, 2025

Profs. Erin Buchanan and Dora Matzke

Editors-in-Chief

Behavior Research Methods

Dear Editors,

Dear Professors Buchanan and Matzke,

Attached please find our manuscript titled "The individual-level precision of implicit measures", which we would like to submit as an original research article to *Behavior Research Methods*. The manuscript is 35 pages long and includes 2 figures and 2 tables.

Implicit measures are extensively used across domains and subfields within psychological science. A foundational goal related to their historical and contemporary use, which is discussed throughout the literature on the topic, is that they should be able to act as instruments to make inferences about *individual persons*’ attitudes, beliefs, and biases. To date, however, implicit measures researchers have not directly estimated the individual measurement (im)precision associated with these measures; despite this, point estimate values for scores on these measures (e.g., the IAT) are described as being diagnostic of particular magnitudes of bias (e.g., on the Project Implicit website, cut-offs of 0, .015, 0.35, and 0.65 are used to describe individual persons as having no bias, weak bias, moderate bias, and strong bias, respectively. As we know from statistical testing and psychological assessment more generally, failing to account for measurement imprecision can lead to erroneous inferences. Given the scale of adoption and discussion of these measures in psychology, addressing this issue is critical.

In the present manuscript, we address this longstanding issue by estimating the individual-level (im)precision of six different implicit measures across three domains using a simple bootstrapping approach. This method has advantages over other methods of individual score estimation in psychological assessment literature (e.g., the standard error of measurement): namely, it does not require the estimation of test-retest or internal consistency coefficients, and allowing for individualised confidence interval widths (rather than a single width applied uniformly to all participants, as is the case with most other approaches to individual estimation). Our results reveal that there is substantial room for improvement in the precision of these measures generally, and also provide researchers with an ordinal ranking of the quality of these measures for this purpose. We also provide updated cut-offs which could be used for more accurate inferences based on IAT scores on the Project Implicit site, as well as providing initial brief guidelines for the degree of precision that researchers may desire from these instruments in future.

We believe our work will be of great interest to the readership of Behavior Research Methods, for readers and researchers who (i) use implicit measures, (ii) use other response time or accuracy-based psychological tasks who wish to estimate individual-level precision, and (iii) have a more general theoretical interest in the “group-to-person generalisability problem” which has seen recent discussion within psychology generally.

I will be serving as the corresponding author for this manuscript. All authors listed in the by-line have agreed to the by-line order and to submission of the manuscript in this form. I have assumed responsibility for keeping my co-authors informed of our progress through the editorial review process, the content of the reviews, and any revisions made.

The work reported in this paper has not been published previously in this form or any other form, nor is it under consideration for publication elsewhere. We hope that you will consider our manuscript for publication and look forward to your reply.

Sincerely,

Jamie Cummins  
Department of Consumer Behavior and Department of the Psychology of Digitalisation   
University of Bern

Ian Hussey

Department of the Psychology of Digitalisation

University of Bern