Teaching & Learning Guide for: Measuring Implicit Intergroup Biases

Calvin K. Lai¹ & Megan E. Wilson¹

¹ Washington University in St. Louis, St. Louis, Missouri, USA

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Author's Introduction

Understanding how to measure aspects of intergroup bias that people are not willing or able to report is challenging. Designing a valid implicit measure that can assess these aspects of intergroup bias requires considerations about its reliability, its internal validity, and its predictive validity. Our main article describes the evidence for the reliability and validity of implicit measures. In this accompanying guide, we give recommendations for education on implicit measures for learners of different reading levels.

- For academic researchers and interested individuals that would like to learn more about measurement in implicit social cognition, we suggest reviewing the papers listed in our *Author Recommends* section.
- For educators of introductory level undergraduates, we recommend the resources in the *Online Materials* section.
- For educators of upper-level undergraduates and graduate students, we recommend the resources in the *Sample Syllabus* and *Seminar/Project Idea* sections.

Author Recommends:

In this section, we recommend readings that are definitive empirical studies or are more exhaustive reviews of topics covered in our paper.

1. Gawronski, B., & Payne, B. K. (2011). *Handbook of implicit social cognition: Measurement, theory, and applications*. Guilford Press.

A definitive handbook that provides a comprehensive overview of research in implicit social cognition. This nearly-600 page handbook includes guides on how to create implicit measures and chapters on topics as varied as implicit identities, the developmental psychology of implicit biases, formation and change in implicit biases, and implicit political cognition.

2. Axt, J. R., Ebersole, C. R., & Nosek, B. A. (2014). The rules of implicit evaluation by race, religion, and age. *Psychological Science*, 25, 1804–1815. DOI: 10.1177/0956797614543801

This ambitious study examines the commonalities in implicit attitudes across major dimensions of social stratification across over 200,000 people. They find that measures of implicit attitudes consistently reflect ingroup favoritism and culturally shared hierarchies of social status.

3. Bar-Anan, Y., & Nosek, B. A. (2014). A comparative investigation of seven indirect attitude measures. *Behavior Research Methods*, 46, 668–688. DOI: 10.3758/s13428-013-0410-6

This large-scale study of over 23,000 people compares the psychometric properties of seven implicit measures on internal consistency, known-group differences, relationships with explicit measures, and relationships with other implicit measures. Unlike other comparative studies of psychometrics which meta-analyze the published literature, all of the comparisons were made within the same empirical study so differences in sample, setting, and analysis approach were controlled for by the research design.

4. Brownstein, M., Madva, A., & Gawronski, B. (2019). What do implicit measures measure? *WIREs Cognitive Science*, 10, e1501. DOI: 10.1002/wcs.1501

This review paper gives a deep and philosophically-informed examination of the concepts that implicit measures assess. They discuss whether the underlying mental representations are conscious or unconscious; associative or propositional; traits or states; and characteristics of persons or situations.

5. Calanchini, J., & Sherman, J. W. (2013). Implicit attitudes reflect associative, non-associative, and non-attitudinal processes. *Social and Personality Psychology Compass*, 7, 654–667. DOI: 10.1111/spc3.12053

This review paper gives an exhaustive review of the non-attitudinal and non-associative processes that contribute to performance on implicit measures.

6. Hehman, E., Calanchini, J., Flake, J. K., & Leitner, J. B. (2019). Establishing construct validity evidence for regional measures of explicit and implicit racial bias. *Journal of Experimental Psychology. General*, 148, 1022–1040. DOI: 10.1037/xge0000623

This paper uses best practices in construct validation to establish the validity of implicit and explicit racial bias as a region-level construct. They find that region-level implicit and explicit racial biases show substantive, structural, and external validity.

7. Cameron, C. D., Brown-Iannuzzi, J. L., & Payne, B. K. (2012). Sequential priming measures of implicit social cognition: A meta-analysis of associations with behavior and explicit attitudes. *Personality and Social Psychology Review*, 16, 330–350. DOI: 10.1177/1088868312440047

This meta-analysis of 167 studies using sequential priming measures finds that they are related to explicit attitudes and behavior. Prediction of explicit attitudes and behavior is stronger under theoretically anticipated conditions.

8. Kurdi, B., Seitchik, A. E., Axt, J. R., Carroll, T. J., Karapetyan, A., Kaushik, N., ... Banaji, M. R. (2019). Relationship between the Implicit Association Test and intergroup behavior: A meta-analysis. *American Psychologist*, 74, 589-586. DOI: 10.1037/amp0000364

This meta-analysis of 217 research reports using the Implicit Association Test finds that the test is related to explicit and behavioral measures. Like in Cameron et al. (2012), the authors also find that relationships are stronger when there is a stronger match between the implicit measure and the outcome.

9. Forscher, P. S., Lai, C. K., Axt, J. R., Ebersole, C. R., Herman, M., Devine, P. G., & Nosek, B. A. (2019). A meta-analysis of procedures to change implicit measures. *Journal of Personality and Social Psychology*, 117, 522–559. DOI: 10.1037/pspa0000160

This meta-analysis of 492 experiments examined change in implicit measures. A smaller subset of those studies also examined whether experimentally induced changes in implicit measures explained changes in explicit measures or behavior. The authors found that it did not. These findings suggest that a need for better theory and advances in measurement to understand the relationship between implicit biases and explicit/behavioral measures.

Online Materials:

1. Who, Me? Biased?

<https://www.nytimes.com/video/who-me-biased>

This is a great and brief web documentary series that serves as a useful introduction to implicit bias. In 2017, this documentary was nominated for an Emmy.

2. Project Implicit's Interactive Website

<https://implicit.harvard.edu/>

Visitors to this website can take an Implicit Association Test on a topic of their choosing, get feedback on their performance, and learn about how the Implicit Association Test is interpreted.

3. First Person Shooter Task Demonstration

http://psych.colorado.edu/~jclab/FPST/demo/canvas/testPrograms/st_v.1.html

Visitors to this website can take a First Person Shooter Task.

4. How to Think about Implicit Bias

<https://www.scientificamerican.com/article/how-to-think-about-implicit-bias/>

This op-ed by Payne, Niemi, and Doris is a great introduction for thinking broadly about measurement of implicit bias and its relationship to societal inequality.

5. Project Implicit's Demo Website Datasets

<https://osf.io/y9hiq/>

Project Implicit makes data from millions of participants at their interactive website publicly available. This is a handy resource for students to familiarize themselves with data and could be adapted for a class exercise to test out some of the questions about predictive validity raised in our paper.

Sample Syllabus:

Week 1: What Makes a Mental Process Automatic or Implicit?

Calanchini, J., & Sherman, J. W. (2013). Implicit attitudes reflect associative, non-associative, and non-attitudinal processes. *Social and Personality Psychology Compass*, 7, 654–667. <https://doi.org/10.1111/spc3.12053>

Melnikoff, D. E., & Bargh, J. A. (2018). The mythical number two. *Trends in Cognitive Sciences*, 22, 280–293. <https://doi.org/10.1016/j.tics.2018.02.001>

Week 2: What do Implicit Measures Measure?

De Houwer, J. (2019). Implicit bias is behavior: A functional-cognitive perspective on implicit bias. *Perspectives on Psychological Science*, 14, 835–840. <https://doi.org/10.1177/1745691619855638>

Gawronski, B., Peters, K. R., & LeBel, E. P. (2008). What makes mental associations personal or extra-personal? Conceptual issues in the methodological debate about implicit attitude measures. *Social and Personality Psychology Compass*, 2, 1002–1023. <https://doi.org/10.1111/j.1751-9004.2008.00085.x>

Week 3: Mental Representations

De Houwer, J. (2014). A propositional model of implicit evaluation. *Social and Personality Psychology Compass*, 8, 342–353. <https://doi.org/10.1111/spc3.12111>

Gawronski, B., & Bodenhausen, G. V. (2014). Implicit and explicit evaluation: A brief review of the associative–propositional evaluation model. *Social and Personality Psychology Compass*, 8(8), 448–462. <https://doi.org/10.1111/spc3.12124>

Week 4: Stability of Implicit Measures

Baron, A. S., & Banaji, M. R. (2006). The development of implicit attitudes: Evidence of race evaluations from ages 6 and 10 and adulthood. *Psychological Science*, 17(1), 53–58.

Gawronski, B., Morrison, M., Phillips, C. E., & Galdi, S. (2017). Temporal stability of implicit and explicit measures: A longitudinal analysis. *Personality and Social Psychology Bulletin*, 43, 300–312. <https://doi.org/10.1177/0146167216684131>

Week 4: Implicit Bias and Explicit Bias

Nosek, B. A. (2005). Moderators of the relationship between implicit and explicit evaluation. *Journal of Experimental Psychology. General*, 134, 565–584. <https://doi.org/10.1037/0096-3445.134.4.565>

Week 5: Implicit Bias and Behavior

Kurdi, B., Seitchik, A. E., Axt, J. R., Carroll, T. J., Karapetyan, A., Kaushik, N., Tomezsko, D., Greenwald, A. G., & Banaji, M. R. (2019). Relationship between the Implicit Association Test and intergroup behavior: A meta-analysis. *American Psychologist*, 74, 569–586. <https://doi.org/10.1037/amp0000364>

Week 6: Implicit Bias and Regional Inequality

Payne, B. K., Vuletich, H. A., & Lundberg, K. B. (2017). The bias of crowds: How implicit bias bridges personal and systemic prejudice. *Psychological Inquiry*, 28, 233–248. <https://doi.org/10.1080/1047840X.2017.1335568>

Helman, E., Flake, J. K., & Calanchini, J. (2018). Disproportionate use of lethal force in policing is associated with regional racial biases of residents. *Social Psychological and Personality Science*, 9, 393–401. <https://doi.org/10.1177/1948550617711229>

Seminar/Project Idea:

Validate a new implicit measure of intergroup bias

In order to apply what they've learned about implicit bias and construct validation, each student will design a research project that attempts to validate a new implicit measure of intergroup bias. First, they will pick a type of intergroup bias they want to study and are encouraged to select a form of intergroup bias that is understudied (e.g., class, disability, transgender identity). They will then choose an implicit measure that matches their topic well and design appropriate stimuli. Finally, they will propose a study or studies assessing the

measure's test-retest reliability, predictive validity for corresponding explicit biases, and predictive validity for corresponding behavioural outcomes.