

Psychometrika, Applications and Case Studies (ARCS)

CALL FOR PAPERS

Special section on: Integrating and analyzing complex high-dimensional data in social and behavioral sciences research

The digital revolution has resulted both in technologically advanced measurement tools and an increase in available data; often, this leads to data with more variables than participants or so-called high-dimension low-sample-size (HDLSS) data. Moreover, research paradigms have shifted towards multi-disciplinary approaches, with behavior and cognition not only studied from the psychological perspective but also from other disciplinary perspectives such as the environmental, social, clinical, and biomolecular. Examples of emergent high-dimensional data types with relevance to educational and psychological research include the following application domains:

- Neuroimaging data from various modalities
- Data from wearable devices that track one's physiology and location
- Textual language data
- Biomolecular data
- Data from gaming or digital assessment tools used in educational testing

Incorporating these and other high-dimensional data types into educational and psychological research has common challenges. Given the recent emergence of many of these data types, there is little theory to build on and a need for methods that support theory development via explanatory models that are interpretable in a meaningful way. Prediction has gained more attention in the social and behavioral sciences given its practical relevance (e.g., predicting treatment outcomes and informed decision making), and predictive modeling in the HDLSS setting requires special consideration. Moreover, challenges with respect to the integration of multi-view/-modal/-domain data often occur from the collection of multiple high-dimensional sources on the same participants. Examples of relevant analytical approaches include the following interrelated methodological domains:

- Dimension reduction and latent variable techniques
- Variable selection approaches
- Natural language processing
- Spatiotemporal modeling and functional data analysis
- Machine learning methods for regression or classification

Relevant methodology for high-dimensional data arises not just in psychometrics and quantitative psychology, but also in statistics, bioinformatics, computer science, chemometrics and other quantitative fields. Thus, a multi-disciplinary approach is often useful with respect to both methodology and application.

To advance social and behavioral science research in this era of digitalization, we invite submissions on models and practical considerations for complex high-dimensional data in the social and behavioral sciences. To be considered for this special section, manuscripts should center around an application to high-dimensional data in the psychological, educational, or social

sciences. We especially encourage junior scholars to submit their research projects related to this topic.

SUBMISSION GUIDELINES

Interested authors are asked to submit a short proposal (1000 words or less) by **August 5th, 2024** (see the link below). The proposal should briefly describe the methodological contribution of the work on the integration and analysis of complex high-dimensional data and the motivating real data application. The proposals will undergo initial review by the guest editors. After reviewing the proposals, the guest editors will invite a subset of authors to submit a full manuscript to the special section. This process is intended to ensure that submissions are aligned with the topic of the special section. The guest editors may also offer suggestions on the intended projects to ensure a good fit to the special section. The editors will get back to all authors with a decision on their proposal by **September 16th, 2024**.

The deadline for submission of invited manuscripts is **January 31st, 2025**. All manuscripts submitted to the special section will go through the regular peer-review process (i.e., acceptance of the proposal does not guarantee publication). Submissions must represent original material that has neither been submitted to, nor published in, any other journal.

Proposals can be submitted via [Qualtrics](#).

Invited manuscripts must be submitted to the editorial manager submission system at <https://www.editorialmanager.com/pmet/> and the authors should select the special section “**Integrating and Analyzing Complex High-Dimensional Data in Social and Behavioral Sciences Research**” during the submission process.

Please direct all queries regarding this special issue to the guest editors.

GUEST EDITORS

Dr. Katrijn Van Deun

Department of Methodology & Statistics
School of Social and Behavioral Sciences
Tilburg University
K.VanDeun@tilburguniversity.edu

Dr. Eric F. Lock

Division of Biostatistics & Health Data Science
School of Public Health
University of Minnesota
elock@umn.edu