10ᵗʰ Annual International Conference on Psychology and Workshop in Quantitative Methods

The Athens Institute for Education and Research (ATINER), a world association of academics and researchers, organizes its 10ᵗʰ Annual International Conference on Psychology, 23-26 May 2016, in Athens, Greece. (http://www.atiner.gr/psychology)

If you would like to present, please submit a 300-word abstract by 21 March 2016, by email (atiner@atiner.com), addressed to Dr. Thanos Patelis, Head, Psychology Research Unit, ATINER, Senior Associate, National Center for the Improvement of Educational Assessment, USA & Research Scholar, Fordham University, USA.

As part of the conference, ATINER is pleased to announce a four-hour workshop session on *Quantitative Methods in Evaluating the Quality of Assessments* featuring Dr. Laine Bradshaw, University of Georgia, Athens, GA, USA, Dr. Sara Finney, James Madison University, Harrisonburg, VA, USA, and Dr. Stephen Sireci, University of Massachusetts-Amherst, Amherst, MA, USA. When registering, please mention your interest in attending this session.

In this session, presentations will be made about three quantitative methods used in the development and maintenance of assessments. The *Standards for Educational and Psychological Testing* (AERA, et al., 2014) specify five sources of validity evidence that can be used to support the use of a test for a particular purpose. Each presenter will discuss how to gather various sources of evidence from three psychometric frameworks: multidimensional scaling, structural equation modeling and diagnostic classification modeling.

First, Dr. Sireci will discuss how multidimensional scaling can be used to provide validity evidence based on (a) test content, and (b) internal structure. With respect to validity evidence based on test content, he will review models and applications for discovering subject matter experts' perceptions of the dimensions measured by items comprising an assessment. With respect to validity evidence based on internal structure, he will discuss how weighted multidimensional scaling can be used to evaluate the structural invariance of an assessment across different subgroups of examinees, across different testing conditions (e.g., paper, computer, test administration conditions), and across different language versions of an assessment.

Second, Dr. Finney will discuss how structural equation modeling (SEM) can provide additional validity evidence based on (a) internal structure, and (b) external structure. With respect to validity evidence based on internal structure, she will discuss how confirmatory factor analysis affords the testing of competing theoretically-based models (e.g., unidimensional models, multidimensional models, bifactor models) and the computation of model-based reliability estimates. With respect to validity based on external structure, she will discuss how SEM offers the possibility to test theories by estimating relationships between the underlying constructs of interest, rather than estimating relationships between observed variables that are contaminated by measurement error.

Third, Dr. Bradshaw will discuss how a family of psychometric models known as diagnostic classification models (DCMs) can be used to provide validity evidence when the latent traits measured by a test are categorical. She will discuss validity evidence with respect to (a)

response processes and (b) internal structure. With respect to response processes, she will discuss how initial evidence for the underlying processes elicited by an item can be collected via cognitive interviews and then how the alignment of items and response processes can be empirically tested using model-based parameters. She will then show how validity evidence on the internal structure for categorical traits can be gathered using DCMs in a way that is analogous to gathering validity evidence on the internal structure of continuous traits using confirmatory factor analysis: She will show how to compare model-data fit among a set of theoretically-based models to gather empirical evidence to support the hypothesized dimensionality of the test.

Attendees of this section will be provided with a conceptual overview of a fundamental aspect of measurement (i.e., validity) and detailed information about three quantitative methods to gather and represent validity evidence. Attendees will learn the conceptual basis of each method as each method is applied to representing and evaluating test scores. The attendees will learn the requirements to implement each method with suggestions related to software applications that can implement the procedures, and be given references for additional information.

Background of Presenters:

Laine P. Bradshaw, Ph.D.
Assistant Professor, Department of Educational Psychology, University of Georgia

Dr. Laine Bradshaw is an Assistant Professor of Quantitative Methodology in the Educational Psychology Department at the University of Georgia. Her research focuses on psychometrics, specifically on diagnostic measurement using contemporary item response models called diagnostic classification models (DCMs). Her research efforts seek to refine statistical methodology to enable assessment results to provide useful information about students' complex knowledge structures, including concepts they understand as well as misconceptions they have. Dr. Bradshaw received her Ph.D. in Research, Evaluation, Measurement, and Statistics from the University of Georgia, College of Education. Prior to working at the University of Georgia, Dr. Bradshaw was an Assistant Professor and Assistant Assessment Specialist at James Madison University.

Sara J. Finney, Ph.D.
Professor, Department of Graduate Psychology, James Madison University

Dr. Sara J. Finney has a dual appointment at James Madison University as professor in the Department of Graduate Psychology and as assessment specialist in the Center for Assessment and Research Studies. In addition to teaching multivariate statistics and structural equation modeling for the Assessment and Measurement PhD program, she is coordinator of the Quantitative Psychology concentration within the Psychological Sciences MA program. She is the recipient of several teaching, mentoring, and research awards. Much of her research involves the application of structural equation modeling to better understand the measurement of psychoeducational constructs and issues associated with examinee motivation. She currently serves on the Educational Records Bureau and GRE Technical Advisory Committees and on the editorial boards for the *Journal of Educational Psychology* and *Educational and Psychological Measurement*. Her work in the Center for Assessment as an assessment specialist involves applied measurement and program evaluation consultation to facilitate compliance with institutional accountability mandates.

Stephen G. Sireci, Ph.D.
Professor, Department of Educational Policy, Research and Administration
University of Massachusetts-Amherst

Dr. Stephen G. Sireci is Professor in the Psychometrics Program and Director, Center for Educational Assessment, University of Massachusetts Amherst. His Ph.D. is in psychometrics from Fordham University, and his master's and bachelor's degrees are in psychology from Loyola College. Prior to UMass, he was Senior Psychometrician (GED Testing Service), Psychometrician (Uniform CPA Exam), and Research Supervisor of Testing (Newark (NJ) Board of Education). His research focuses on educational test development and evaluation, validity, cross-lingual assessment, standard setting, and computer-based testing. He serves on several advisory committees (e.g., NBPTS, Puerto Rico, Texas), and is a Fellow of AERA, a Fellow of Division 5 of APA, and past Co-Editor of *International Journal of Testing* and *Journal of Applied Testing Technology*. He served as President of NERA and on the Board of Directors for NCME. His awards include the Outstanding Teacher Award, Chancellor's Medal, Award for Outstanding Accomplishments in Research and Creative Activity, and the Conti Faculty Fellowship.