
Digital Module 09: Sociocognitive Assessment for Diverse Populations

Robert J. Mislevy & Maria Elena Oliveri, Educational Testing Service (ETS)

Module Overview

In this digital ITEMS module, Dr. Robert [Bob] Mislevy and Dr. Maria Elena Oliveri introduce and illustrate a sociocognitive perspective on educational measurement, which focuses on a variety of design and implementation considerations for creating fair and valid assessments for learners from diverse populations with diverse sociocultural experiences. The first part of the module, narrated by Dr. Mislevy, contains a general overview section, a description of the sociocognitive framing of assessment issues, and a section on implications for assessment around key concepts such as reliability, validity, and fairness. The second part of the module, narrated by Dr. Oliveri, contains a section on frameworks for fairness investigations and principled assessment design as well as brief vignette-based illustrations of the principles using a prototype activity to support collaboration and communication skills in the workplace. The module is designed to provide a relatively high-level, conceptual, and non-statistical overview and is intended for interdisciplinary team members who need to create fair and equitable learning and assessment systems for diverse populations.

Keywords: assessment design, Bayesian statistics, cross-cultural assessment, diverse populations, educational measurement, evidence-centered design, fairness, international assessments, prototype, reliability, sociocognitive assessment, validity

Prerequisite Knowledge

This ITEMS module assumes no prior knowledge of sophisticated statistical concepts for learning and assessment systems. However, to get the most out of this module, it might be beneficial to have a basic understanding of:

- Assessment goals and formats
 - Construct and competency definitions
 - Different core item types and interactive task types
 - Stages in assessment design, implementation, and evaluation
 - Professional standards and guidelines for assessment
 - Reliability, validity, and fairness considerations
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Learning Objectives

Upon completion of this ITEMS module, learners should be able to describe / identify:

- key principles of a sociocognitive perspective in educational measurement and how they reflect changes in the landscape of educational assessment
- key implications of this perspective for the design, evaluation, and implementation of learning and assessment systems with complex tasks
- key connections between this perspective and comprehensive fairness evaluations to meet professional standards and guidelines for assessments in diverse populations
- key design choices that are guided by a sociocognitive perspective in the vignettes included in the module and apply these to their own projects

Module Structure

The digital module is divided into the following sections, which can be reviewed sequentially or independently [*approximate completion times in parentheses*].

- Module Introduction [*5 Minutes*]
- Section 1: General Introduction [*20 Minutes*]
- Section 2: Sociocognitive Foundations [*15 Minutes*]
- Section 3: Assessment Implications [*20 Minutes*]
- Section 4: Principled Assessment Design [*20 Minutes*]
- Section 5: Illustrative Vignettes [*20 Minutes*]

In the portal site, you can also find a video version of the content as well as a handout with all core slides along with other materials.

Module Components

This ITEMS module includes the following components, which are delivered within a web-delivered unified design shell that is compatible across platforms (i.e., laptops, desktops, tablets, cell phones) and was created with modern course development software (*Articulate 360*):

- integrated content slides that provide a structured walk-through of the content
- glossary of key terms
- supplementary digital resources

This module does not contain quiz questions or data-driven tasks due to the nature of the content. Additional materials may be added over time so check back periodically!

Instructors

Robert [Bob] Mislevy, *Lord Chair in Measurement and Statistics at Educational Testing Service (ETS)*



Dr. Mislevy is the Frederic M. Lord Chair in Measurement and Statistics at Educational Testing Service as well as Professor Emeritus of Measurement, Statistics, and Evaluation at the University of Maryland, with affiliations with Second Language Acquisition and Survey Methods. Dr. Mislevy's research applies developments in statistics, technology, and cognitive science to practical problems in educational assessment. His work includes a multiple-imputation approach to integrate sampling and psychometric models in the National Assessment of Educational Progress (NAEP), an evidence-centered framework for assessment design, and simulation- and game-based assessment with the Cisco Networking Academy. Among his many

awards are AERA's Raymond B. Cattell Early Career Award for Programmatic Research, NCME's Triennial Award for Technical Contributions to Educational Measurement (3 times), NCME's Award for Career Contributions, AERA's E.F. Lindquist Award for contributions to educational assessment, the International Language Testing Association's Messick Lecture Award, and AERA Division D's inaugural Robert L. Linn Distinguished Address Award. He is a member of the National Academy of Education and a past president of the Psychometric Society. He has served on projects for the National Research Council, the Spencer Foundation, and the MacArthur Foundation concerning assessment, learning, and cognitive psychology, and on the Gordon Commission on the Future of Educational Assessment. His most recent book is "Sociocognitive Foundations of Educational Assessment" for which he received the 2019 NCME Annual Award and on which this ITEMS module is based.

Maria Elena Oliveri, *Research Scientist at Educational Testing Service (ETS)*



Dr. María Elena Oliveri is a Research Scientist in the Academic to Career research center at the Educational Testing Service (ETS). Her research focuses on fairness, validity, diversity, equity, and innovative assessment design and development of competency-based digital formative assessments of 21st century skills. She has actively disseminated her research in numerous published articles in journals such as *Applied Measurement in Education* and the *International Journal of Testing*; she has led various professional development workshops at national and international conferences such as AERA, NCME, and ITC; and she has presented at numerous national and international conferences. In earlier stages

of her career, she was a literacy mentor to second-language teachers in the Vancouver School District as well as a teacher of second language learners and students with disabilities and she has hosted workshops for educators on innovative approaches to assessing culturally and linguistically diverse learners. She also was a lecturer at the University of British Columbia, Vancouver, Canada where she taught courses on assessment and developmental psychology to students pursuing Bachelor of Education degrees in French Immersion programs.

Instructional Design Team

André A. Rupp, *Research Director at Educational Testing Service (ETS)*



André is a research director in the psychometrics, statistics, and data sciences area at ETS. He is the co-author and co-editor of two award-winning interdisciplinary books entitled *Diagnostic Measurement: Theory, Methods, and Applications* (2010) and *The Handbook of Cognition and Assessment: Frameworks, Methodologies, and Applications* (2016); he is currently working on the *Handbook of Automated Scoring: Theory into Practice*. His synthesis- and framework-oriented research has appeared in a wide variety of prestigious peer-reviewed journals. Among other things, he is passionate about improving processes for interdisciplinary collaborations during the development and implementation of scoring solutions for digitally-delivered assessments. Consequently, he is very excited to serve as the associate editor / lead developer of the ITEMS portal for NCME whose mission is to provide free digital resources in educational measurement to support self-directed learning and professional development.

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