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National Council on Measurement in Education

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2009 Training Sessions  
April 12-13, 2009

2009 Annual Meeting  
April 14-16, 2009

San Diego, California

# NCME • 2009 Annual Meeting & Training Sessions

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Future Annual Meetings

**2010 Annual Meeting**

April 29 - May 3

Denver, Colorado

**2011 Annual Meeting**

April 7 - 11

New Orleans, Louisiana

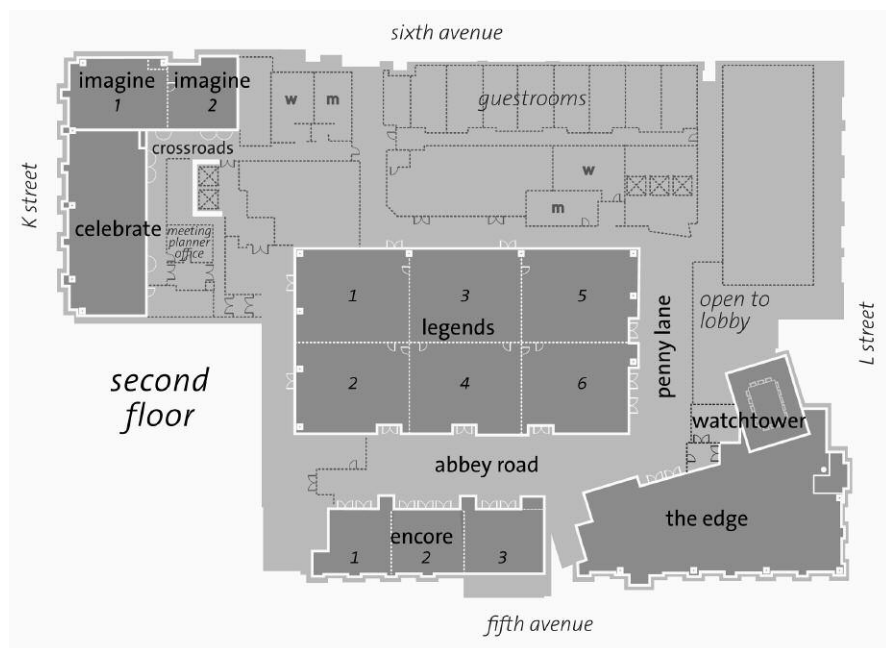
**2012 Annual Meeting**

April 12 - 16

Vancouver, British Columbia, Canada

# San Diego, California

## Hard Rock Hotel



## PRE-CONFERENCE TRAINING SESSIONS

The 2009 NCME pre-conference training sessions will be held at the Hard Rock Hotel. All full-day sessions will run from 8:00 a.m. to 5:00 p.m. All half-day morning sessions will run from 8:00 a.m. to 12:00 noon. All half-day afternoon sessions will run from 1:00 p.m. to 5:00 p.m.

### Sunday, April 12, 2009

#### **Sunday, 8:00 a.m. - 12:00 noon, Legends 2, AA**

Using R for Everyday Research

*Presenter(s): Brian Habing, University of South Carolina; Jessalyn Smith, University of South Carolina*

The free statistics package R has become a favorite of statisticians over the past decade – and it offers a large number of benefits to quantitative researchers in all areas of educational research. With you working along through each step on your own laptop computer, this training course will cover some of the most useful aspects of R for any researcher, including: making fully customized graphs (including color, axes, and labels); manipulating data sets in an intuitive way to quickly get the precise subset of subjects and variables that you want; and performing statistical analyses with a single command. The course will end with basic examples of how R can be used to simulate data sets (with an example perfect for classroom use) and how it can be easily customized to perform functions that aren't built in.

This course is designed for those who have had a two-course sequence in quantitative methods but have no previous experience with R. Participants must bring their own (windows compatible) laptop computer; all required software will be provided.

#### **Sunday, 8:00 a.m. - 12:00 noon, Legends 3, BB**

Quality Control in Test Development, Scoring, and Reporting of Test Scores

*Presenter(s): Avi Allalouf, National Institute for Testing and Evaluation; Ruth Fortus, National Institute for Testing and Evaluation*

Testing in educational and psychological measurement involves a number of important stages, each depending greatly upon the previous one: test development, test scoring, test analysis and score reporting. This training session deals with quality control procedures for these stages.

Quality control procedures are required in order to monitor the testing process and to keep the number of mistakes to a minimum. Mistakes in scoring, for example, can lead to legal action against the testing agency or the educational institution; a high incidence of mistakes in items will have an adverse impact on test reliability and validity.

Professional practitioners should be aware of possible mistakes that can occur during test development, test scoring, test analysis and the reporting of scores.



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They should act in accordance with up-to-date standards and have a broad knowledge of quality control practices, as these are critical in the never-ending fight against errors. This session is intended to increase accuracy in test measurement. In the session, mistakes that might occur at each stage will be presented, followed by examples and quality control procedures for avoiding, detecting or correcting these mistakes. Many of the quality control procedures discussed are also relevant for Internet-Delivered and Internet-Scored testing.

The session will also touch on models that deal with the causes, prediction, and reduction of human error.

The workshop will be potentially useful for people who are involved in:

- Test development
- Test administration
- Scoring tests
- Item and test analysis (including test norming and equating)
- Maintaining test security
- Reporting test results and providing feedback to people who have been tested
- Policy-making and legislation

The workshop will consist of short modules, each accompanied by real-world examples. Participants will be given hands-on practice in detecting various types of errors. The workshop content is based upon experience gained by the presenters from their work at NITE, and upon an ongoing project of developing quality control guidelines for the ITC (International Testing Commission).

## **Sunday, 8:00 a.m. - 12:00 noon, Legends 1, CC**

Linking and Aligning Scores and Scales

*Presenter(s): Jinghua Liu, Educational Testing Service; Neil Dorans, Educational Testing Service; Mary Pommerich, Defense Manpower Data Center; Michael Walker, Educational Testing Service*

The communication of linking issues to test score users is a critical component to ensuring the validity of a linkage. This training session seeks to facilitate communication about the appropriate use and interpretation of linked scores by emphasizing the different meanings that can be attached to different linkages, and the necessary requirements to achieve solid linkages. A *foundations* portion will present a historical perspective on score linking, provide definitions and distinctions between types of linkages, discuss relevant data collection designs, and give an overview of linking methodology and assumptions. A *linking scenarios* portion will make expanded distinctions between types of linkages and discuss practical issues, using real world examples. Topics will be equating, tests in transition, concordance, vertical scaling, and linking group assessments to individual assessments. A *tools* portion will discuss indices that can be used to choose an appropriate linkage type and methods that can be used to evaluate linkage quality. A *score interpretation* portion will focus on the appropriate usage and interpretation of linked scores, comparing and contrasting across the different linking scenarios.

A book written by the presenter will be distributed to participants.

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## **Sunday, 8:00 a.m. - 5:00 p.m., Legends 4, DD**

### Developing Noncognitive Assessments

*Presenter(s): Patrick Kyllonen, Educational Testing Service; Richard Roberts, Educational Testing Service*

Noncognitive qualities are increasingly recognized as important determinants and reflections of success in education from K-12 through graduate and professional school. In this training session we will provide background theory and frameworks for developing noncognitive assessments, and provide hands-on experience in developing and evaluating noncognitive assessments. We will review the major personality models and related noncognitive constructs, discuss methods used to measure noncognitive qualities, demonstrate how to find or to write noncognitive items, present the advantages and disadvantages of different approaches to collecting data, and review strategies for dealing with various validity threats, such as the problem of faking on self assessments. We will demonstrate analysis approaches, including exploratory and confirmatory factor-analysis, and review various uses of noncognitive assessments.

The session will consist of a series of lectures interspersed with examples and empirical findings. Q&A will be encouraged throughout. We will cover the following topics:

- Noncognitive construct frameworks, models, and theories (personality, attitudes, values, beliefs, and other constructs)
- Developing assessments from construct definitions and item pools, including the International Personality Item Pool (IPIP)
- Various methods for assessing noncognitive qualities (self-assessments, others' ratings, situational judgment tests, conditional reasoning, implicit association tests)
- Item writing do's and don'ts
- The problem of faking on self-assessments (preventing, detecting, and correcting for it)
- Delivery platforms (web and paper-and-pencil)
- Exploratory factor analysis and other data structure exploration methods
- Confirmatory factor analysis
- Advanced methods (IRT, latent class models, unfolding models)
- Special topics (rating scale issues [optimal number of points; presence of neutral point, "do not know"], reverse key items)
- Indirect measures (e.g., from school records)
- Example noncognitive assessments (self-help for community college; institutional reporting for K-12; high stakes for graduate school)

## **Sunday, 8:00 a.m. - 5:00 p.m., Legends 5, EE**

### Generalizability Theory and Applications

*Presenter(s): Robert Brennan, University of Iowa; Xiaohong Gao, ACT, Inc.; Won-Chan Lee, University of Iowa*

Generalizability theory liberalizes and extends classical test theory. In particular, generalizability theory enables an investigator to disentangle multiple sources of error through the application of analysis of variance procedures to assess the dependability of measurements.

The primary goals of this training session are to enable participants to understand the basic principles of generalizability theory, to conduct relatively straightforward generalizability analyses, and to interpret and use the results of such analyses. Mathematical and statistical foundations will be treated only minimally. Major emphasis will be placed upon quickly enabling participants to conduct and interpret relatively straightforward generalizability analyses, then more complicated ones. Examples will include various types of performance assessments.

Prerequisites include knowledge equivalent to one course in educational measurement and familiarity with ANOVA at the level treated in introductory graduate courses in education and psychology. A book written by the director and entitled *Generalizability Theory* will be distributed to participants and used as a principle reference in the training session. Computer programs for performing generalizability analyses will be discussed and illustrated. (Participants need not bring laptops.)

### **Sunday, 8:00 a.m. - 5:00 p.m., Legends 6, FF**

Item Response Theory: Parameter Estimation Techniques

*Presenter(s): Seock-Ho Kim, University of Georgia*

Theory and methods for the educational and psychological measurement of latent variables using item response theory methodology are discussed. The one-parameter logistic or Rasch, the two-parameter logistic, and the Birnbaum's three-parameter models for dichotomously scored item response data will be reviewed from a theoretical viewpoint with an emphasis on the various estimation techniques of the model parameters. Applications of these models to practical measurement situations will be studied using item response theory computer programs. Topics of the course consist of item calibration, scoring, information, and some applications to instrument construction. Models for polytomously scored items are briefly discussed.

Prerequisites include knowledge equivalent to one graduate course in theoretical educational measurement and familiarity with differential and integral calculus treated in undergraduate mathematics courses. A book coauthored by the director with Frank B. Baker entitled *Item Response Theory: Parameter Estimation Techniques* will be distributed to participants and used as a principle reference in the training session. Computer programs for performing item response theory analyses will be discussed and illustrated. Participants are encouraged to bring their own laptop computers.

The intended audience is principally upper-level graduate students and new measurement professionals who are interested in learning about the various parameter estimation techniques in the context of unidimensional item response theory models.

## **Sunday, 1:00 p.m. - 5:00 p.m., Legends 2, RR**

### Managing Simulation Studies with R

*Presenter(s): Brian Habing, University of South Carolina; Jessalyn Smith, University of South Carolina*

Simulation studies to validate various procedures' effectiveness are a major part of quantitative and psychometric research. The R statistical package can be used to easily run and manage simulation studies, including those that need to call pre-existing programs such as BILOG, MPlus, NOHARM, PARSCALE, POLYQUATE, and TESTFACT. This course will guide the participants through using R to easily generate and manipulate a wide variety of data sets, create the command and data files required by other software, run the other software, and read in the output for further analysis.

This course assumes that the participants have at least some familiarity with R – programming experience is not assumed. Participants should bring their own (windows compatible) laptop computer and any executables that they need to integrate into their own simulation studies. Copies of R, NOHARM, and POLYQUATE will be provided.

## **Sunday, 1:00 p.m. - 5:00 p.m., Legends 3, GG**

### A Nonlinear Mixed Models Approach to IRT

*Presenter(s): Frank Rijmen, Educational Testing Service; Paul De Boeck, KU Leuven, Francis Tuerlinckx, KU Leuven; Mark Wilson, University of California–Berkeley*

The central message of the introduction is that it is beneficial to see IRT models as extensions of generalized linear regression models that seek to model facets of the measurement situation. These facets are most typically persons and items, but the set may be extended to incorporate other facets such as raters, and may also be re-labelled to suit particular applications. While the link function and the random component of the regression model remain the same, the most interesting part of the extension concerns the structural part of the model: (1) the kind of predictive function (linear or *nonlinear*, e.g., bilinear); and (2) the effects (weights) of the predictors (fixed effects or *random* effects).

Starting from some well-known IRT models, other and less well-known models will be framed in this approach, based on a volume published by Springer: *Explanatory Item Response Models: A Generalized Linear and Nonlinear Approach* (De Boeck & Wilson, 2004). We will illustrate how the models can be estimated with the SAS procedure NLMIXED.

The workshop will consist of two parts. In the first part, the explanatory item response framework will be presented, and it will be explained how the framework fits within the family of generalized linear and nonlinear mixed models. Specific attention will be devoted to the distinction between descriptive and explanatory item response models, and the distinction between fixed and random effects. It will be shown how well known item response models fit within this framework. In addition, the framework naturally leads to new item response models, such as models with both random item and random person effects.

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In the second part, an in-depth account will be given of multidimensional item response models, and models for polytomous data. Again, both families of models can be conceptualized as generalized linear and nonlinear mixed models, and doing so naturally leads to model extensions that may be of interest to the applied researcher. In this part, some attention will be devoted to model estimation as well. We will also emphasize random item concepts and models.

Throughout, the models are illustrated with datasets on anger and verbal aggression.

**Monday, April 13, 2009**

### **Monday, 8:00 a.m. - 12:00 noon, Legends 1, HH**

Skills Diagnosis with Latent Variable Models

*Presenter(s): Jimmy de la Torre, Rutgers University; Robert Henson, University of North Carolina–Greensboro; Jonathan Templin, University of Georgia*

The primary aim of skills diagnosis is to develop and analyze tests in ways that reveal information with more diagnostic value, when compared with traditional approaches. In the methods for skills diagnosis that we consider mastery of particular skills or states of knowledge can be represented by a list of binary latent variables, indicating mastery of each of a finite set of skills under diagnosis. The main objective of skills diagnosis is to classify examinees according to this list of skills. In this training session, several popular modeling and classification approaches will be discussed. Three conjunctive latent class models known as the DINA, NIDA, and Fusion models will be introduced, and software for fitting these models with Mplus will be demonstrated. The training session is meant to provide practical guidelines for implementing skills diagnosis, and considers essential topics such as construction of fixed-length tests, identifying the attributes measured by items, and model-data fit.

The intended audience for this training session includes anyone interested in cognitive or skills diagnosis who has some familiarity with item response theory or classical test theory. No previous knowledge of latent class models or cognitive diagnosis is required. The material will be useful for faculty and students specializing in educational testing, as well as testing professionals working in government or private testing organizations.

The objective of this training session is to provide a short course in some of the most common methods of latent variable modeling that are being applied in cognitive and skills diagnosis. The emphasis is on education as well as training with a particular piece of software. By the end of this session, participants should have a basic understanding of general latent class models, conjunctive latent class models tailored to cognitive diagnosis, methods for constructing exams, and evaluation of goodness of fit. There will also be a discussion of identifying skills on an exam, and construction of exams when diagnosis is the primary objective.

## **Monday, 8:00 a.m. - 12:00 noon, Legends 2, II**

Vertical Scaling Methodologies, Applications, and Research

*Presenter(s): Michael Kolen, University of Iowa; Ye Tong, Pearson*

The potential need for constructing a vertical scale arises whenever a testing program has multiple grade levels and wishes to have a common scale to compare test scores across these grade levels. Vertical scaling uses statistical process to place test scores that measure similar content domain but at different educational levels onto a common scale. The goals of the session are for attendees to be able to understand the principles of vertical scaling, to conduct vertical scaling and to interpret the results of vertical scaling in reasonable ways. Vertical scaling will be contrasted with related equating and linking processes. Traditional and IRT vertical linking methodologies will be described and practical issues will be discussed.

The focus is on developing a conceptual understanding of vertical scaling through numerical examples and discussion of practical issues. Importance and challenges related to vertical scaling will be included. The text for the session is a chapter in the second edition of Kolen and Brennan's (2004) *Test Equating, Scaling, and Linking: Methods and Practices* (Second Edition). The session is designed for upper level graduate students, new Ph.D.'s, testing professionals with operational or oversight responsibility for vertical scaling, and others with interest in learning about vertical scaling methods and practices. Participants should have at least two graduate courses in measurement and two graduate courses in statistics.

## **Monday, 8:00 a.m. - 12:00 noon, Legends 3, JJ**

Development and Use of Innovative Item Types in Computer-Based Testing

*Presenter(s): Kathleen Scalise, University of Oregon; Mark Wilson, University of California–Berkeley*

One potential limitation for realizing the benefits of computer-based assessment (CBT) in both instructional assessment and large scale testing comes in designing questions and tasks with which computers can effectively interface (i.e., for scoring and score reporting purposes) while still gathering meaningful measurement evidence. This workshop will allow participants to explore introducing some innovative item types into their assessment content. A taxonomy of 28 innovative item types in computer-based assessment will be introduced. These item types have responses that fall somewhere between fully *constrained* responses (i.e., the conventional multiple-choice question), which can be too limiting to tap much of the potential of new information technologies, and fully *constructed* responses (i.e., the traditional essay), which can be a challenge for computers to meaningfully analyze. Participants will bring example items to the workshop or be provided with examples, work hands-on to convert to innovative types through a variety of content approaches, investigate and implement automated scoring options for their selected types, and finish the workshop with modeling practices for collection of high quality assessment evidence, in a CBT interface using IRT.

## **Monday, 8:00 a.m. - 5:00 p.m., Legends 4, KK**

An Introduction to Student Growth Percentiles: Concepts, Estimation and Use

*Presenter(s): Damian Betebenner, Center for Assessment; Jinnie Choi, University of California–Berkeley; Hi Shin Shim, Georgia Institute of Technology; Dianne Lefly, Colorado Department of Education; Marie Huchton, University of Colorado–Boulder*

The proliferation of annual student testing during the last decade has left states and testing organizations with vast amounts of longitudinal assessment data and few sophisticated means to analyze these multiyear data sets. As a consequence, use of growth analyses to inform discussions about student growth and its relationship to education quality has been limited. In this training session, participants will be introduced to student growth percentiles and shown how to use the open source R software package to calculate student growth percentiles and percentile growth trajectories with large (e.g., state-level) longitudinal datasets. Topics covered will include a conceptual overview of student growth percentiles, data preparation, student growth percentile calculation, percentile growth trajectory calculation and their use with growth standard setting. The session will incorporate real-world examples of how the results of such analyses can be used as part of state and federal accountability systems to inform discussions about educational quality.

## **Monday, 8:00 a.m. - 5:00 p.m., Legends 5, LL**

Applying Hierarchical Models to Causal Inference

*Presenter(s): Guanglei Hong, Ontario Institute for Studies in Education of the University of Toronto; Stephen Raudenbush, University of Chicago*

In this training session we will introduce recent development of causal inference concepts and methods for evaluating educational policy and program effects in multi-level settings when randomized experiments are infeasible. We teach hierarchical linear and nonlinear models in combination with propensity score-based methods for causal effect estimation. Education examples will be used throughout in lecture, discussion, and hands-on practice. The session is intended for researchers interested in investigating the effectiveness of educational policies, intervention programs, and various educational practices. After presenting the basics of hierarchical models and of causal inference, we use examples to illustrate: (1) how to conceptualize, in terms of potential outcomes, the causal effects of educational interventions carried out in a multi-level school system; (2) how to identify and summarize information of selection bias from multiple sources through analyzing logistic regression models or hierarchical generalized linear models; (3) how to stratify sample data on the basis of the estimated propensity score; (4) how to use hierarchical models to statistically adjust for the selection bias in multi-level data; (5) how to make explicit statistical assumptions; and (6) how to assess the consequences of possible unmeasured confounders. Participants will practice the procedure of causal effect estimation using HLM version 6 along with SPSS 15.0. Participants are expected to bring a laptop computer with SPSS and HLM standard version or trial edition installed. The standard version or the free 15-day trial edition of the HLM 6 software is available at <http://www.ssicentral.com/hlm/downloads.html>

**Monday, 8:00 a.m. - 5:00 p.m., Legends 6, MM****Bayesian Networks in Educational Assessment**

*Presenter(s): Duanli Yan, Educational Testing Service; Russell Almond, Educational Testing Service; Robert Mislevy, University of Maryland; David Williamson, Educational Testing Service*

The Bayesian paradigm provides a convenient mathematical system for reasoning about evidence. Bayesian networks provide a graphical language for describing complex systems, and reasoning about evidence in complex models. This allows assessment designers to build scoring that have fidelity to cognitive theories about the domain and yet are mathematically tractable and can be refined with observational data. Topics covered in this tutorial are evidence-centered assessment design, basic Bayesian network representations and computations, available software for manipulating Bayesian networks, refining Bayesian networks using data, and example systems using Bayesian networks. It is recommended that participants bring a laptop to run sample exercises using the student version of Netica (<http://www.norsys.com/>).

**Monday, 1:00 p.m. - 5:00 p.m., Celebrate, NN****Building and Documenting a Valid Assessment System for Students with Disabilities**

*Presenter(s): Karen Barton, CTB/McGraw-Hill; Lara Osleson, CTB/McGraw-Hill*

*Invited Speaker: Dianne Lefly, Colorado Department of Education*

This course is intended for psychometricians, researchers, state Departments of Education personnel, and test development experts who wish to design, build, and document in technical format reliable, valid, defensible assessments, particularly alternate and modified assessments for students with disabilities. Topics range from assessment policy, design, and development to appropriate statistical design and analyses, special studies, and technical documentation. The session will provide the audience with sound psychometric tools and practices to assure alternate (as well as modified and general) assessments can meet high standards of technical adequacy with practical tips and solutions for documenting evidence in a legally defensible manner. In particular, this session will focus on building validity evidence.

Participants will be guided through each step in designing and building a valid and defensible assessment, with approaches to collecting appropriate validity evidence linked to the Standards (AERA, NCME, APA) and Critical Elements). Parallels and distinctions will be made between alternate assessments and both modified and general assessments. Invited speakers will discuss modified and alternate approaches from a state perspective.



**Monday, 1:00 p.m. - 5:00 p.m., Legends 1, OO**

Cognitive Assessment: An Introduction to the Rule Space and Q-Matrix Method

*Presenter(s): Kikumi Tatsuoka, Columbia University; Anabelle Guerrero, University of Costa Rica; Enis Dogan, American Institutes for Research*

This book introduces a new methodology that allows for the analysis of test results that is free from ambiguous interpretations and demonstrates an individual's true state of knowledge. Measuring the underlying knowledge and cognitive skills is not an easy task because it is impossible to directly observe them; therefore, they are named "latent variables." However, the latent variables useful in cognitive diagnosis must be in the 100's and not just one variable like a "q" ability variable in Item Response Theory. To achieve these difficult goals, we need a new methodology that will transform many unobservable knowledge and skills variables (defined as "attributes" throughout in the book) into observable and measurable attributes without losing their original meanings.

The purpose of this book is to introduce one such methodology, Rule Space, that has been used since the 1980s and has made it possible to measure these unobservable latent variables and to clearly interpret the results, without losing the original meaning of attributes. The Rule Space Method (RSM) transforms unobservable attributes involved in test items into observable attribute mastery probabilities that are defined as the probability of using each attribute correctly to get the correct answer for given problems. In other words, RSM converts students' item response patterns into the attribute mastery probabilities. The Rule Space Method (RSM), which can determine an individual's strengths and weakness, has been applied to PSAT to generate scoring reports, which inform schools, teachers and parents exactly what the total score of 500 means. Since RSM belongs to an approach of statistical pattern recognition and classification problems popular in engineering areas, this book will be useful to graduate students in a variety of disciplines. This book has ten chapters but in this training session, emphases are given to the Q-matrix Theory, Rule Space classifications, the attribute reliability and validity theory. Inquiries about this session should be sent to kumitats@yahoo.com.

**Monday, 1:00 p.m. - 5:00 p.m., Legends 2, PP**

Technical Aspects of School Accountability

*Presenter(s): Huynh Huynh, University of South Carolina; Robert Kennedy, University of Arkansas for Medical Sciences; Charity Smith, Arkansas Department of Education*

The purpose of this training session is to introduce recent technical development regarding school accountability. Technical issues concerned with creating school index based on test data, assessing reliability and conditional standard error for the index, setting via school-descriptor and bookmark processes, and assessing reliability and validity of school classifications. Using the Arkansas Act 35 school accountability system as a case study, participants will be guided through the development and operation of the index for school performance (status) and the index of school growth or improvement gain. Handouts given include two technical documents, one for school performance and the other for school growth.

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Participants are expected to be familiar with basic knowledge of applied statistics and technical aspects of assessment, and a level of awareness of operational and legal issues relating to school accountability.

### **Monday, 1:00 p.m. - 5:00 p.m., Legends 3, QQ**

Tips for Graduate Students: Advice for Finishing School, Obtaining a Job, and Starting a Career

*Presenter(s): Deborah Harris, ACT, Inc.; Julio Sanclemente, CTB/McGraw-Hill; Andrew Ho, University of Iowa*

This training session has three main components: (1) Finishing up the Ph.D., including finding a dissertation topic, what employers are looking for, how to maximize job possibilities at the conference, and how to maximize experiences while still a student (classes, internships, work experiences, networking, professional associations); (2) Obtaining a job, including how to decide what kind of job you want, how to locate where jobs are available (universities, testing companies, school districts, state departments, professional/licensing organizations, etc.), how to apply for jobs (including targeting cover letters, references, and resumes) and the interview process (questions to ask and questions to be prepared to answer, giving a job talk, following up after the interview); and (3) Beginning a career, including negotiating an offer, job politics, adjusting to the environment, career path, publishing, professional service, being a mentor/finding a mentor, balancing work and life, and what to do if you end up hating your job. Attendees are provided with a rich packet of resource materials covering the above areas, and are actively encouraged to ask questions and provide comments throughout the session. The presenters provide subsequent information after the session via email to attendees on issues/questions that require follow-up (in the past this has included items like job possibilities in a particular geographic region or more information on specific grant possibilities for grad students).

## San Diego, California

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Monday, 4:00 p.m. - 7:00 p.m., Watchtower

### **NCME Board of Directors Meeting**

Members of NCME are invited to attend as observers.

Tuesday, 8:15 a.m. - 10:15 a.m., Legends 3, A1

## **Issues in the Use of Automated Essay Scoring in High Stakes Assessments – Invited Symposium**

### **Organizer/Moderator**

*Brent Bridgeman, Educational Testing Service*

### **Presenters**

David Williamson, Educational Testing Service

*A Framework for Evaluating and Implementing Automated Scoring*

Tim Davey, Educational Testing Service

*Principles for Building and Evaluating E-Rater Scores*

Brent Bridgeman, Educational Testing Service, Catherine Trapani, Educational Testing Service

*Considering Fairness and Validity in Evaluating Automated Scoring*

Karen Lochbaum, Pearson, John De Jong, Pearson

*Evaluating Automated Scoring for Operational Use in Consequential Language Assessment: The Pearson Experience*

Yigal Attali, Educational Testing Service

*Evaluating Types of Automated Scoring Models for Operational Use in High-Stakes Assessments: The ETS Experience*

### **Discussants**

*Mark Shermis, University of Florida*

*Brian Clauser, National Board of Medical Examiners*

Tuesday, 8:15 a.m. - 10:15 a.m., Legends 2, A2

**Measuring and Evaluating Changes in Student Achievement:  
A Conversation about Technical and Conceptual Issues –  
Invited Symposium**

**Organizer/Moderator**

*Derek Briggs, University of Colorado–Boulder*

**Presenters**

Dale Ballou, Vanderbilt University  
*Test Scaling and Value-Added Measurement*

Louis T. Mariano, RAND Corporation, Daniel F. McCaffrey, RAND Corporation,  
J.R. Lockwood, RAND Corporation  
*Estimating Teacher Effects from Longitudinal Data without Assuming Vertical  
Scaling*

Damian Betebenner, Center for Assessment, Derek Briggs, University of  
Colorado – Boulder  
*Are Student Achievement and Growth Scale Dependent?*

Mark Wilson, University of California – Berkeley  
*Growth in Student Achievement: Can We Have Both Meaning and Technical  
Rigor?*

**Discussants**

*Michael Kolen, University of Iowa*  
*Richard Patz, CTB/McGraw-Hill*  
*Frank Rijmen, Educational Testing Service*

Tuesday, 8:15 a.m. - 10:15 a.m., Legends 4, A3

## Technical Issues in Standard Setting – Paper Session

### Moderator

Gregory Cizek, University of North Carolina – Chapel Hill

### Presenters

Robert Henson, University of North Carolina – Greensboro, Jonathan Templin, University of Georgia

*Using Diagnostic Model Criteria as Proficiency Standards: Combining Psychometrics and Statistics to Produce Accurate Examinee Classification*

Susan Davis, Alpine Testing Solutions, Chad Buckendahl, Alpine Testing Solutions

*Evaluating Panelists' Bookmark Standard Setting Judgments: The Impact of Random Item Ordering*

Michael Rodriguez, University of Minnesota, Otto Rego, USAID – Guatemala, Fernando Rubio, USAID – Guatemala

*Examining Variation in Independent Replications of the Bookmark Standard Setting Method on Two Tests*

Christina Schneider, CTB/McGraw-Hill, Karla Egan, CTB/McGraw-Hill, Teri Siskind, South Carolina Department of Education, Amelia Brailsford, South Carolina Department of Education, Elizabeth Jones, South Carolina Department of Education

*Concurrence of Target Student Descriptors and Mapped Item Demands in Achievement Levels Across Time*

Kooghyang Um, Pearson, Denny Way, Pearson, Steven Fitzpatrick, Pearson, Cindi Kreiman, Pearson

*The Effects of Response Probability Criteria on the Scale Location Estimation and Impact Data in Standard Setting*

### Discussant

Mary Pitoniak, Educational Testing Service

Tuesday, 8:15 a.m. - 10:15 a.m., Legends 5, A4

## Issues in IRT Modeling – Paper Session

### Moderator

*Terry Ackerman, University of North Carolina – Greensboro*

### Presenters

Longjuan Liang, Educational Testing Service

*A Semi-Parametric Approach to Estimating Item Response Functions*

Lixiong Gu, Educational Testing Service, Venessa Lall, Educational Testing Service, James Carlson, Educational Testing Service

*Effects of Collapsing Low Frequency Score Categories on Constructed Response Items Calibrated with the Generalized Partial Credit Model*

Peter van Rijn, CITO, Huub Verstralen, CITO, Anton Béguin, CITO

*Classification Accuracy of Multiple-Test Based Decisions Using Item Response Theory*

Na Yang, University of South Carolina, Brian Habing, University of South Carolina

*Distinguishing Monotone and Unfolding Items When Both are Present*

### Discussant

*Hua-Hua Chang, University of Illinois*

Tuesday, 8:15 a.m. - 10:15 a.m., Legends 6, A5

## **IRT-Based Test Equating – Paper Session**

### **Moderator**

*Michael Walker, Educational Testing Service*

### **Presenters**

Tae-hoon Kang, CRESST/UCLA, Nancy Petersen, ACT, Inc.  
*Linking Item Parameters to a Base Scale*

Shelley Ragland, James Madison University, Peter Pashley, Law School Admission Council, Ronald Armstrong, Rutgers University  
*Deriving IRT Scale Transformation Constants: A Predicted Score Distribution Approach*

Yasuko Nogami, The Japan Institute for Educational Measurement, Inc., Natsuko Kataoka, The Japan Institute for Educational Measurement, Inc., Shin-ichi Mayekawa, Tokyo Institute of Technology  
*A Practical Method for Switching IRT Models from 3PL to 2PL Applied to an Item Bank in Actual Use.*

Huijuan Meng, Pearson, Brad Ching-Chao Wu, Pearson,  
*The Effects of Linking Design on Pretest Calibration Results*

Yunmei Xu, Education Quality and Accountability Office  
*Measuring Trends in Achievement: Scaling Issues in Current International Assessments*

### **Discussant**

*Robert Smith, Educational Testing Service*



Tuesday, 10:35 a.m. - 12:05 p.m., Legends 2, B1

## **Evidence-Centered Assessment Design in Practice – Coordinated Session**

### **Organizers**

*Kristen Huff, College Board*

*Barbara Plake, University of Nebraska*

### **Moderator**

*Wayne Camara, College Board*

### **Participants**

Kristen Huff, College Board, Linda Steinberg, College Board, Thomas Matts, College Board

*The Promise and Challenge of Implementing ECD in Large Scale Assessment*

Maureen Ewing, College Board, Sheryl Packman, College Board, Cynthia Hamen, College Board, Allison Clark, College Board

*Representing Targets of Measurement Using ECD*

Barbara Plake, University of Nebraska, Kristen Huff, College Board, Rosemary Reshetar, College Board

*ECD as a Foundation for Achievement Level Descriptions and Standard Setting*

Amy Hendrickson, College Board, Kristen Huff, College Board, Richard M. Luecht, University of North Carolina – Greensboro

*Claims, Evidence and Achievement Level Descriptions as a Foundation for Item Design and Test Specifications*

### **Discussant**

*Isaac I. Bejar, Educational Testing Service*

Tuesday, 10:35 a.m. - 12:05 p.m., Legends 3, B2

## **Comparing the Incommensurable – Methods and Experiences in Trying to Compare Student Achievement Across States, Districts, and Schools – Coordinated Session**

### **Organizer/Moderator**

*Thanos Patelis, College Board*

### **Participants**

David Conley, University of Oregon

*Methodological Issues in Comparing Across Multiple Standards Systems: Using 12th Grade NAEP as a Measure of College and Employment Preparedness*

Paul Gazzo, School Evaluation Services, Standard & Poor's

*Identifying Top-Performing High Schools across States Using Multi-Tiered Method and Multiple Performance Indicators*

Henry Braun, Boston College

*To Compare is Human, to Make Sense of it All, Divine*

Andrew Ho, University of Iowa

*Graphical Methods for Comparing Trends, Gaps, and Gap Trends across Tests*

# San Diego, California

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Tuesday, 10:35 a.m. - 12:05 p.m., Legends 4, B3

## **DIF Applications – Paper Session**

### **Moderator**

*Anne Harvey, American Board of Emergency Medicine*

### **Presenters**

Ou Lydia Liu, Educational Testing Service

*Does Content Knowledge Affect TOEFL® iBT Reading Performance?*

*A Confirmatory Approach to Differential Item Functioning*

Catherine Taylor, University of Washington, Yoonsun Lee, Seoul Women's University

*Using DIF Analysis to Evaluate the Reading and Mathematics Dimensions of Science Achievement Tests*

Yi-Hsin Chen, University of South Florida

*A Unified Approach that Combines Differential Item Functioning with the Rule-Space Method for Validating Cognitive Attributes for the TIMSS Mathematics Items*

Robert Fay, University of South Florida, Yi-Hsin Chen, University of South Florida, Yuh-Chyn Leu, National Taipei University of Education

*Substantive and Cognitive Interpretations of Gender DIF on a Fraction Concept Test*

### **Discussant**

*Lisa Keller, University of Massachusetts–Amherst*

Tuesday, 10:35 a.m. - 12:05 p.m., Legends 5, B4

## Standard Errors of Equating – Paper Session

### Moderator

*Brad Ching-Chao Wu, Pearson*

### Presenters

Yuming Liu, Educational Testing Service, Yanming Jiang, Educational Testing Service, Lei Yu, Pacific Metrics  
*Standard Error Estimation of IRT True Score Equating with Anchored Constructed Responses*

Yi He, University of Iowa, Deborah Harris, ACT, Inc.  
*An Empirical Comparison of the Magnitude of Standard Errors of Equating across Equating Methods, Degrees of Smoothing, Score Scales, and Test Lengths*

Tim Moses, Educational Testing Service, Wenmin Zhang, Educational Testing Service  
*Standard Errors of Equating Differences*

Chunxin Wang, University of Iowa, Su Zhang, Ontario Educational Quality and Accountability Office  
*Bootstrapping to Estimate Standard Errors of Equating: Parametric or Nonparametric?*

### Discussant

*Chingwei David Shin, Pearson*

Tuesday, 10:35 a.m. - 12:05 p.m., Legends 6, B5

## **Innovations in Item Types and Test Design – Paper Session**

### **Moderator**

*Michael Kane, National Conference of Bar Examiners*

### **Presenters**

Kimberly Swygert, National Board of Medical Examiners, Colette Scott, National Board of Medical Examiners, Dave Swanson, National Board of Medical Examiners, Danette McKinley, ECFMG, John Boulet, ECFMG  
*An Assessment of Encounter Timing in A High-Stakes Standardized-Patient Based Examination*

Kathleen Scalise, University of Oregon  
*Innovative Item Types: New Results on Intermediate Constraint Questions and Tasks for Computer-Based Testing*

Richard Luecht, University of North Carolina – Greensboro, Matthew Burke, University of North Carolina – Greensboro, Richard Devore, American Institute of Certified Public Accountants  
*Task Modeling of Complex Computer-Based Performance Exercises*

Lei Wan, Pearson, George Henly, Minnesota Department of Education  
*Measurement Properties of Innovative Item Formats in a Computer-Based Science Test*

### **Discussant**

*James Olsen, Alpine Testing Solutions*

Tuesday, 12:25 p.m. - 1:55 p.m., Legends 3, C1

## **Current Practices in Licensure and Certification Testing – Coordinated Session**

### **Organizer/Moderator**

*Chad Buckendahl, Alpine Testing Solutions*

### **Participants**

Ardeshir Geranpayeh, University of Cambridge ESOL Examinations  
*Use of Language Testing as a Companion for a Credentialing Examination Program*

Susan Davis, Alpine Testing Solutions  
*Integration of Cognitive Demand into Credentialing Exam Development*

Renee Launey-Rodolf, Oklahoma Commission for Teacher Preparation  
*Hooked on Phonics: Responding to Legislative Demands While Ensuring Psychometric Integrity*

Chad Buckendahl, Alpine Testing Solutions  
*Evaluating Rater Agreement for Credentialing Exams with Performance Items: Integrating Policy and Practice*

### **Discussant**

*Denny Way, Pearson*

Tuesday, 12:25 p.m. - 1:55 p.m., Legends 4, C2

## **Technical Issues in CAT – Paper Session**

### **Moderator**

*Kimberly Swygert, National Board of Medical Examiners*

### **Presenters**

Kyoko Ito, Human Resources Research Organization, Mary Pommerich, Defense Manpower Data Center, Dan O. Segall, Defense Manpower Data Center

*A Comparison of Three Procedures for Computing Information Functions for Scores from Computerized Adaptive Tests*

Chingwei David Shin, Pearson, Tsung-Han Ho, University of Texas – Austin, Yueh-Mei Chien, Pearson, Hui Deng, College Board

*A Comparison of Person-Fit Statistics in Computerized Adaptive Test Using Empirical Data*

Fumiko Samejima, University of Tennessee

*A Wise Use of Noise Parameter(s) in CAT for Accurate Latent Trait Estimation*

Hui Deng, College Board, Gerald Melican, College Board

*An Investigation of Item Parameter Drift in Computer Adaptive Test*

### **Discussant**

*G. Gage Kingsbury, Northwest Evaluation Association*

Tuesday, 12:25 p.m. - 1:55 p.m., Legends 5, C3

## **Design Issues in Vertical Scaling – Paper Session**

### **Moderator**

*Valerie Link, Educational Testing Service*

### **Presenters**

Xuan Wang, ACT, Inc., Deborah Harris, ACT, Inc.

*Maintaining Vertical Scales Under Common-Item Nonequivalent Groups Design*

Junghnam Kim, CTB/McGraw-Hill, Won-Chan Lee, University of Iowa,

Dong-In Kim, CTB/McGraw-Hill, Kristina Kelly, CTB/McGraw-Hill

*Investigation of Vertical Scaling Using the Rasch Model*

Feifei Li, University of Maryland – College Park, Frank Rijmen, Educational Testing Service

*A Vertical Linking Design for Periodic Assessments and Tests that Consist of Situated Tasks*

Ahmet Turhan, Pearson, Troy Courville, Pearson, Leslie Keng, Pearson

*The Effects of Anchor Item Position on a Vertical Scale Design*

### **Discussant**

*Peter van Rijn, CITO*



Tuesday, 12:25 p.m. - 1:55 p.m., Legends 2, C4

## **Modifications of Traditional Methods of Setting Standards – Paper Session**

### **Moderator**

*Paul Nichols, Pearson*

### **Presenters**

Dorry Kenyon, Center for Applied Linguistics, Carolyn Fidelman, Center for Applied Linguistics

*Standard Setting with the Modified Body of Work Method*

Alvaro Arce-Ferrer, Pearson

*An Investigation of Traditional and Alternative Approaches to Vertically Scale Modified Angoff Cut Scores*

Richard Tannenbaum, Educational Testing Service, Irvin Katz, Educational Testing Service

*Setting Standards On A Computer-Based, Automatically Scored Performance Assessment*

Adam Wyse, Michigan State University, Mark Reckase, Michigan State University

*A Synthesis and Investigation of Angoff Derivative Methods for Setting Cut Scores*

Russell Smith, Alpine Testing Solutions, Susan Davis, Alpine Testing Solutions  
*Combining the Best of Both Worlds: The Ordered Item Booklet Angoff*

### **Discussant**

*Scott Elliot, SEG Assessment / SEG Research*

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Tuesday, 12:25 p.m. - 1:55 p.m., Legends 6, C5

## Test Accommodations – Paper Session

### Moderator

*Su Baldwin, National Board of Medical Examiners*

### Presenters

Huafang Zhao, Montgomery County Public Schools, Maryland, Clare Von Secker, Montgomery County Public Schools, Maryland  
*Does Read-Aloud Accommodation on a Reading Test Impact Test Validity for English Language Learners?*

Claudia Flowers, University of North Carolina – Charlotte, Do-Hong Kim, University of North Carolina – Charlotte, Preston Lewis, University of Kentucky, Violeta Davis, University of Kentucky  
*Score Comparability of Computer and Adult Read-Aloud Accommodation*

Lisa Harris, Winthrop University, Huynh Huynh, University of South Carolina  
*Using Technology to Deliver Accommodations: A DIF Analysis of the Read-Aloud Administration Delivered by Oral Script and CDROM*

Carole Gallagher, WestEd, Edynn Sato, WestEd, Stanley Rabinowitz, WestEd  
*Methodological Considerations When Studying Test Accommodation Impact*

### Discussant

*Scott Marion, National Center for the Improvement of Educational Assessment, Inc.*

Tuesday, 2:15 p.m. - 3:45 p.m., Legends 3, D1

## **How Fair Are Large Scale English Language Arts Assessments for Students Who are Deaf and Hard of Hearing? – Coordinated Session**

### **Organizer**

*Linda Cook, Educational Testing Service*

### **Moderator**

*Maria Martiniello, Educational Testing Service*

### **Participants**

Jonathan Steinberg, Educational Testing Service, Guangming Ling, Educational Testing Service

*Using Factor Analysis to Examine Measurement Invariance for an English-language Arts Assessment Given to Students Who Are Deaf and Hard of Hearing*

Frederick Cline, Educational Testing Service

*Examining the Scores of Students Who are Deaf and Hard of Hearing on a State Standards Based English Language Arts Test: A Differential Item Functioning Analysis*

Elizabeth Stone, Educational Testing Service

*Examining the Fairness of an English-language Arts Assessment for Students Who Are Deaf and Hard of Hearing Using Differential Distractor Functioning Analysis*

Linda Cook, Educational Testing Service

*A Comparison of the Internal Structure of an English-language Arts Assessment for Students with Disabilities and English-language Learners*

### **Discussant**

*Karen Barton, CTB/McGraw-Hill*

Tuesday, 2:15 p.m. - 3:45 p.m., Legends 4, D2

## **Test Design and Automated Test Assembly – Paper Session**

### **Moderator**

*John Kalohn, FINRA*

### **Presenters**

Chun Wang, University of Illinois, Hua-Hua Chang, University of Illinois – Urbana-Champaign

*Determining Appropriate Test Length for Linear Test: Stratified Forward Selection Method*

Ken Cor, University of Alberta, Cecilia Alves, University of Alberta, Mark Gierl, University of Alberta

*Three Applications of Automated Test Assembly within a User-Friendly Modeling Environment*

Kirk Becker, Pearson

*Automated Test Assembly Heuristics–Algorithms for the Rest of Us*

Ronald Hambleton, University of Massachusetts – Amherst, Wendy Lam, University of Massachusetts – Amherst

*Redesign of State Achievement Tests Based on a Consideration of Information Functions*

### **Discussant**

*Kristen Huff, College Board*

Tuesday, 2:15 p.m. - 3:45 p.m., Legends 5, D3

## **IRT Model Fit – Paper Session**

### **Moderator**

*Youngsuk Suh, University of Wisconsin – Madison*

### **Presenters**

Xiaowen Zhu, University of Pittsburgh, Clement Stone, University of Pittsburgh  
*Assessing the Fit of Unidimensional GRM using PPMC Method*

Huynh Huynh, University of South Carolina  
*Use of Robust z in Detecting Unstable Items in 2PL and 3PL Models*

Kyong Hee Chon, University of Iowa, Stephen Dunbar, University of Iowa,  
Won-Chan Lee, University of Iowa  
*An Investigation of Item Fit Statistics for Mixed IRT Models*

Bradley Brossman, University of Iowa, Timothy Ansley, University of Iowa  
*An Empirical Investigation of the Sampling Distribution of the Chi-Square G/D Statistic*

### **Discussant**

*Alan Mead, Illinois Institute of Technology*

Tuesday, 2:15 p.m. - 3:45 p.m., Legends 2, D4

## **Cognitive Diagnosis – Paper Session**

### **Moderator**

*Mark Gierl, University of Alberta – CRAME*

### **Presenters**

Jiawen Zhou, University of Alberta – CRAME, Mark Gierl, University of Alberta – CRAME, Ying Cui, University of Alberta – CRAME  
*Attribute Reliability in Cognitive Diagnostic Assessment*

Leanne Ketterlin-Geller, University of Oregon, Paul Yovanoff, University of Oregon  
*Model Comparisons: Fitting Cognitive Diagnostic Models to Data*

Ting Zhang, University of Maryland – EDMS, André A. Rupp, University of Maryland – EDMS  
*Assessing the Model Fit of Cognitive Diagnosis Models through Bayesian Methods: A Simulation Study*

Matthew Burke, University of North Carolina – Greensboro, Joshua Goodman, University of North Carolina – Greensboro, Robert Henson, University of North Carolina – Greensboro  
*Assessing the Degree Misfit for Cognitive Diagnosis Models Applied to Tests Developed Under an IRT Framework*

### **Discussant**

*Susan Embretson, Georgia Institute of Technology*

Tuesday, 2:15 p.m. - 3:45 p.m., Legends 6, D5

## **Issues in Vertical Scaling – Paper Session**

### **Moderator**

*Amy Hendrickson, College Board*

### **Presenters**

Ye Tong, Pearson, Michael Kolen, The University of Iowa  
*A Further Look into Maintenance of Vertical Scales*

Shudong Wang, Educational Testing Service, Hong Jiao, University of Maryland,  
Yanming Jiang, Educational Testing Service  
*Exploring Relationship between Static and Dynamic Vertical Scaling from  
Cross-Section and Longitudinal Design Perspective*

Ahmet Turhan, Pearson, Chow-Hong Lin, Pearson, Kimberly O'Malley, Pearson,  
Michael Kolen, University of Iowa  
*Vertical Scaling for Paper and Online Assessments*

Jonathan Beard, University of Iowa  
*An Investigation of Vertical Scaling with Item Response Theory using  
A Multistage Testing Framework*

### **Discussant**

*Alina von Davier, Educational Testing Service*

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Tuesday, 4:05 p.m. - 6:05 p.m., Legends 3, E1

## **Accurate Assessment of Student Achievement: Today's Challenges and Solutions (Graduate Student Issues Committee) – Invited Symposium**

### **Organizer**

*Dubravka Svetina, Arizona State University*

### **Moderator**

*Kimberly A. Swygert, National Board of Medical Examiners*

### **Presenters**

Jamal Abedi, University of California – Davis, Chad Buckendahl, Alpine Testing Solutions, Christy Hovanetz-Lassila, MGT of America, Inc., Robert Lissitz, University of Maryland, John Tanner, Council of Chief State School Officers



# San Diego, California

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Tuesday, 4:05 p.m. - 6:05 p.m., Legends 2, E2

## **Making Test Score Scales and Reports More Understandable and Useful – Invited Symposium**

### **Organizer**

*Ronald K. Hambleton, University of Massachusetts – Amherst*

### **Presenters**

John Hattie, University of Auckland

*Visibly Learning from Reports: The Validity of Score Reports*

Sandip Sinharay, Educational Testing Service, Shelby Haberman, Educational Testing Service, Gautam Puhan, Educational Testing Service

*Reporting Diagnostic Scores: Temptations, Pitfalls, and Some Solutions*

Thanos Patelis, College Board, Haifa Matos, College Board

*Efforts to Produce Relevant Score Reports to Schools, Districts, and State Officials on National Tests*

Krista Breithaupt, American Institute of Certified Public Accountants, David Chuah, American Institute of Certified Public Accountants

*Performance Reporting for a Licensing Exam: What Can, and Should, We Tell Test Takers?*

April Zenisky, University of Massachusetts, Stephen Sireci, University of Massachusetts

*Performing At or Above Proficient: The Reporting of NAEP Results in the Internet Age*

### **Discussant**

*Joseph M. Ryan, Arizona State University*

Tuesday, 4:05 p.m. - 6:05 p.m., Legends 4, E3

## Research Directions in Equating – Coordinated Session

### Organizers

*Tim Moses, Educational Testing Service*  
*Alina von Davier, Educational Testing Service*

### Moderator

*Lilly (Yuli) Zhang, Educational Testing Service*

### Participants

*Alina von Davier, Educational Testing Service*  
*IRT-Observed Score and Local Equating under the Observed-Score Equating Framework*

*Jaime Cid, James Madison University, Alina von Davier, Educational Testing Service*  
*Examining Potential Boundary Bias Effects in Kernel Smoothing on Equating*

*Safir Yousfi, Federal German Employment Agency, Alina von Davier, Educational Testing Service*  
*Lord's Equity Equating Requirement Revisited: Attainability and Practical Usefulness*

*Tim Moses, Educational Testing Service, Weiling Deng, Educational Testing Service, Lilly (Yuli) Zhang, Educational Testing Service*  
*The Use of Two Anchors in NEAT Equating*

*Henry Chen, Educational Testing Service, Paul Holland, Educational Testing Service*  
*Nonlinear Levine Observed Score Equating. Or Is It?*

### Discussants

*Wim J. van der Linden, CTB/McGraw-Hill*  
*James E. Carlson, Educational Testing Service*

Tuesday, 4:05 p.m. - 6:05 p.m., Legends 5, E4

## **New IRT Models and Methodology – Paper Session**

### **Moderator**

*Robert Henson, University of North Carolina – Greensboro*

### **Presenters**

Chi-Ming Su, National Chung Cheng University, Wen-Chung Wang, Hong Kong Institute of Education

*Item Response Models for Local Dependence Between Repeated Ratings*

James Roberts, Georgia Institute of Technology, HeaWon Jun, Georgia Institute of Technology, Vanessa Thompson, Georgia Institute of Technology, Hi Shin Shim, Georgia Institute of Technology

*A Distance-Based Multidimensional Extension of the Generalized Graded Unfolding Model*

Lawrence DeCarlo, Teachers College – Columbia University, YoungKoung Kim, Teachers College – Columbia University

*On Scoring Constructed Response Items and Multiple Choice Items: Incorporating Signal Detection and Item Response Models into a Hierarchical Rater Model*

Hye-Jeong Choi, University of Georgia, Jonathan Templin, University of Georgia, Robert Henson, University of North Carolina – Greensboro, Allan Cohen, University of Georgia

*A Diagnostic Classification Mixture Rasch Model (DCMixRM) for Mediating Attributes and Ability*

Hi Shin Shim, Georgia Institute of Technology, James Roberts, Georgia Institute of Technology

*An IRT Model to Estimate Differential Latent Change Trajectories in a Multi-Stage, Longitudinal Assessment*

### **Discussant**

*Frank Rijmen, Educational Testing Service*

Tuesday, 4:05 p.m. - 6:05 p.m., Legends 6, E5

## **New Directions in Test Security and Cheating Detection Research – Invited Symposium**

### **Organizer/Moderator**

*Alan D. Mead, Illinois Institute of Technology*

### **Participants**

David Chuah, American Institute of Certified Public Accountants, Ben-Roy Do, Roosevelt University, Bradley Brummel, University of Tulsa  
*Conspiracy Theory: An Empirical Study of Item Theft in a Continuous Testing Environment*

Ben-Roy Do, Roosevelt University, Fritz Drasgow, University of Illinois  
*Test Coaching Through the Use of Item Preknowledge*

John Mattar, American Institute of Certified Public Accountants, Aster Tessema, American Institute of Certified Public Accountants  
*Examinee Performance on Re-Administered Constructed-Response Items*

Dennis Maynes, Caveon  
*Combining Statistical Evidence for Increased Power in Detecting Cheating*

Alan D. Mead, Illinois Institute of Technology  
*Tracking Stolen Items Using Steganographic Watermarking*

Gunnar Schrah, CorVirtus, LLC, Leanne Buehler, CorVirtus, LLC, Bobby Baker, CorVirtus, LLC  
*Deterrence-Based Prevention of Cheating on Unproctored Internet Tests in High-Stakes Situations: Examining the Impact of a Retest Threat*

### **Discussants**

*Gerald Melican, College Board*  
*Anthony R. Zara, Pearson*

## San Diego, California

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Tuesday, 6:15 p.m. - 7:30 p.m., San Diego Convention Center,  
Ballroom 20D

### **NCME and AERA Division D Joint Welcome Reception for Current and New Members**

Members of NCME and AERA Division D are invited to attend the NCME and AERA Division D Joint Welcome Reception for Current and New Members. Please note that this reception is a new event for the 2009 meeting.

This event replaces the NCME No-Host Welcome Reception and the Division D Reception and Business Meeting. Free drink tickets for graduate students and new members of AERA Division D and NCME will be available at the desk near the entrance to the room. New members will wear ribbons on their conference badges. Please extend a welcome to them.

The reception is sponsored by:

ACT, Inc.

Buros – University of Nebraska-Lincoln

The College Board

CTB/McGraw-Hill

Educational Testing Service

GED Testing Service/American Council on Education

Graduate Management Admission Council

Law School Admission Council

National Board of Medical Examiners (NBME)

# NCME • 2009 Annual Meeting & Training Sessions

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Wednesday, 8:00 a.m. - 10:15 a.m., San Diego Convention  
Center, Ballroom 20D

## **NCME Breakfast, Business Meeting and Presidential Address**

### ***What I Think I Know***

#### **Presenter**

*Mark Reckase, Michigan State University*

# San Diego, California

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Wednesday, 10:35 a.m. - 12:05 p.m., Legends 2, F1

## **Career Award Address: Scores and Scales for Educational Tests – Invited Symposium**

### **Moderator**

*David A. Frisbie, University of Iowa*

### **Presenter**

Michael J. Kolen, University of Iowa  
*Scores and Scales for Educational Tests*

### **Discussant**

*Michael T. Kane, National Conference of Bar Examiners*

Wednesday, 10:35 a.m. - 12:05 p.m., Legends 3, F2

**Large-Scale Assessment and Accommodating Students with Disabilities:  
Past, Present, and Future (Diversity Issues in Testing Committee) –  
Invited Symposium**

**Organizer/Moderator**

*Sara Bolt, Michigan State University*

**Presenters**

Martha Thurlow, University of Minnesota  
*Historical Perspective on Accommodating Students with Disabilities*

Barbara Plake, University of Nebraska  
*A Review of AERA/APA/NCME Test Standards Revisions and Students with Disabilities*

Cara Cahalan Laitusis, Educational Testing Service  
*Investigating Accommodation Validity: Current Approaches*

Sami Kitmitto, American Institutes for Research, Victor Bandeira de Mello,  
American Institutes for Research  
*Measuring the Status and Change of NAEP State Inclusion Rates for Students with Disabilities*

Gerald Tindal, University of Oregon  
*Expanding the Boundaries of Large-Scale Assessments for Students with Disabilities: Increasing Access through Technological Supports in Training*



Wednesday, 10:35 a.m. - 12:05 p.m., Legends 4, F3

## **Test Equity – Paper Session**

### **Moderator**

*John Poggio, University of Kansas*

### **Presenters**

Xuejun (Ina) Shen, Stanford University, Edward Haertel, Stanford University, Richard Shavelson, Stanford University, Aki Murata, Stanford University  
*Do Unintended Effects of High-Stakes Testing Hit Disadvantaged Schools Harder?*

Usama Ali, University of Illinois – Urbana-Champaign, Hua-Hua Chang, University of Illinois – Urbana-Champaign  
*The Equi-percentile Matching-Grouping Method for Mantel-Haenszel-based DIF Detection in CAT Setting*

Soo Eun Chae, University of Maryland – College Park, Doyoung Kim, American Institutes for Research, Stephan Ahadi, American Institutes for Research  
*Measurement Equivalence of Reading and Math Achievement Test: A Comparison between Multigroup CFA and Mantel-Haenszel Techniques*

Jeffrey Patton, University of Massachusetts – Amherst, Craig Wells, University of Massachusetts – Amherst  
*The Standardization Method of DIF Detection: A Two-Stage Approach*

### **Discussant**

*Claudia Flowers, University of North Carolina – Charlotte*

Wednesday, 10:35 a.m. - 12:05 p.m., Legends 5, F4

## **Multidimensionality – Paper Session**

### **Moderator**

*Duanli Yan, Educational Testing Service*

### **Presenters**

Jason Meyers, Pearson, Ahmet Turhan, Pearson, Steven Fitzpatrick, Pearson  
*Interaction of Calibration Procedure and Ability Estimation Method for Writing Assessments under Conditions of Multidimensionality*

Susan Embretson, Georgia Institute of Technology, XiangDong Yang, East China Normal University

*Issues in Applying the Multicomponent Latent Trait Model for Diagnosis to Complex Achievement Tests*

Nilufer Kahraman, National Board of Medical Examiners, Tony Thompson, Pearson

*Relating Unidimensional IRT Parameters to a Multidimensional Response Space: A Comparison of Two Alternative Dimensionality Reduction Approaches*

Shu Jing Yen, CTB/McGraw-Hill, Litong Zhang, CTB/McGraw-Hill, Joanna Tomkowicz, CTB/McGraw-Hill

*Examining Dimensionality of Vertical Scales*

### **Discussant**

*Brian Habing, Statistics Department, University of South Carolina*

Wednesday, 10:35 a.m. - 12:05 p.m., Legends 6, F5

## **Test Security Issues – Paper Session**

### **Moderator**

*Luz Bay, Measured Progress*

### **Presenters**

Michael Finger, American Institute of Certified Public Accountants, David Chuah, American Institute of Certified Public Accountants  
*Response Time Model Estimation via Confirmatory Factor Analysis*

Dmitry Belov, Law School Admission Council, Ronald Armstrong, Rutgers University  
*Automatic Detection of Answer Copying via Kullback-Leibler Divergence and K-Index*

David Chuah, American Institute of Certified Public Accountants, Michael Finger, American Institute of Certified Public Accountants  
*Detecting Aberrant Candidates With Response Time Data: A Simulation Study of Appropriate Flagging Criteria*

Jinming Zhang, University of Illinois – Urbana-Champaign, Ting Lu, Educational Testing Service  
*A Sequential Procedure for Detecting Compromised Items in Item Pool*

### **Discussant**

*Russell Smith, Alpine Testing Solutions*

Wednesday, 12:25 p.m. - 1:55 p.m., Legends 2, G1

## **New Challenge to Computerized Adaptive Testing: Combining Assessment and Diagnosis to Improve Student Learning – Coordinated Session**

### **Organizers**

*Hua-Hua Chang, University of Illinois*

*Katherine Ryan, University of Illinois*

### **Moderator**

*Katherine Ryan, University of Illinois*

### **Participants**

*Hua-Hua Chang, University of Illinois, Katherine Ryan, University of Illinois,*

*Usama Ali, University of Illinois, Chun Wang, University of Illinois*

*Building Effective CATs Based on Existing State Assessment Infrastructure*

*Ying Cheng, University of Notre Dame*

*Plug-and-Play Constraint Management in Computerized Adaptive Testing*

*Fanming Guo, GMAC*

*Quantifying Impact of Compromised Items in CAT*

*Hong-Yuen Liu, Beijing Normal University, Shuliang Ding, Jianxi Normal*

*University, Hua-Hua Chang, University of Illinois*

*Developing Cognitive Diagnostic CAT for Chinese K-12 Education: An Innovative Assessment for Improving Students*

*J. Charles Zhao, Educational Testing Service*

*Optimal Scope of the Item Inventory Refreshment for a State Computerized Assessment Program*

*Chingwei David Shin, Pearson, Yueh-Mei Chien, Pearson, Denny Way, Pearson*

*The Weighted Penalty Model and Conditional Randomesque Method for Item Selection in Computerized Adaptive Tests*

### **Discussant**

*Bo Wang, ACT, Inc.*

Wednesday, 12:25 p.m. - 1:55 p.m., Legends 3, G2

## **IRT Estimation – Paper Session**

### **Moderator**

*G. Anthony Benners, Fordham University*

### **Presenters**

XiangDong Yang, East China Normal University, Huiqin (Ann) Hu, Data Recognition Corporation

*Understanding the Paradox of Item Parameter Invariance*

Michael Toland, University of Nebraska, R.J. De Ayala, University of Nebraska

*The Accuracy of BILOG Item Parameter Standard Error of Estimates*

Brett Foley, Buros Center for Testing

*Improving IRT Item Parameter Estimates with Small Sample Sizes: Evaluating the Efficacy of a New Data Augmentation Technique*

Yanyan Sheng, Southern Illinois University – Carbondale

*A Weakly Informative Prior Distribution for Item Variance Hyperparameters in Hierarchical 3PNO IRT Models*

### **Discussant**

*Seock-Ho Kim, University of Georgia*

Wednesday, 12:25 p.m. - 1:55 p.m., Legends 4, G3

## **Causes and Consequences of DIF – Paper Session**

### **Moderator**

*Todd Rogers, University of Alberta*

### **Presenters**

Yi-Hsuan Lee, Educational Testing Service, Jinming Zhang, Educational Testing Service

*Impact of Differential Item Functioning on Ability Estimation and Reliability*

Kathleen Banks, University of Iowa

*How to Use DDF As a Post Hoc Analysis to Understand the Sources of DIF*

Daeryong Seo, Pearson, Seon-Hi Shin, California State University, Long Beach, Husein Taherbhai, Pearson, Yu Sun, Pearson

*Exploring and Explaining Gender Format Differences in English as a Second Language Writing Assessment Using Logistic Mixed Models*

Yuan Hong, Rutgers University, Jimmy de la Torre, Rutgers University

*Examining the Impact of Item Format on Proficiency Estimation and Subgroups Using Higher-Order IRT Modeling*

### **Discussant**

*Ruth Childs, Ontario Institute for Studies in Education of the University of Toronto*

Wednesday, 12:25 p.m. - 1:55 p.m., Legends 5, G4

## Issues in Certification and Licensure Tests – Paper Session

### Moderator

Mark Albanese, University of Wisconsin–Madison

### Presenters

Brian Bontempo, Mountain Measurement, Inc., Geoffrey Borthwick, Mountain Measurement, Inc.

*Repeat Test Taker Performance*

Chien-Lin Yang, American Dental Association, Gene Kramer, American Dental Association, Barry Grau, American Dental Association

*Using Exploratory and Confirmatory Factor Analyses to Validate the Restructured National Board Dental Part I Examination*

Elaine Rodeck, American Institute of Certified Public Accountants, Yanwei Zhang, American Institute of Certified Public Accountants, Barbara Plake, University of Nebraska, Karin Zeller, American Institute of Certified Public Accountants

*Summarizing Importance and Frequency Scales for a High-Stakes Credentialing Examination*

Xin Li, Pearson, Mark Reckase, Michigan State University

*Multidimensionality and Item Parameter Drift: An Investigation of Linking Items in a Large-Scale Certification Test*

### Discussant

Chad Buckendahl, Alpine Testing Solutions

Wednesday, 12:25 p.m. - 1:55 p.m., Legends 6, G5

## **Effects of Various Features of Anchor Items and Anchor Tests on Equating Results – Paper Session**

### **Moderator**

*Patrick Meyer, University of Virginia*

### **Presenters**

Hyun Sook Yi, Konkuk University

*Evaluating the Performance of Non-Equivalent Groups Anchor Test Equating Under Various Conditions of Anchor Test Construction*

Yeonjeong Kim, Yonsei University, Guemin Lee, Yonsei University

*An Investigation of the Anchor Test Length Effect on Equating Results for NEAT Design Using Simulation Techniques*

Jiyun Zu, University of Notre Dame, Jinghua Liu, Educational Testing Service

*Comparison of Discrete Anchor Items and Passage-Based Anchor Items on Observed Score Equating Results*

Lisa Keller, University of Massachusetts – Amherst, Craig Wells, University of Massachusetts – Amherst

*The Effect of Differentially Functioning Anchor Items on the Classification of Examinees*

### **Discussant**

*Yoonsun Lee, Seoul Women's University*



Wednesday, 2:15 p.m. - 3:45 p.m., Legends 2, H1

## **Designing and Evaluating Modified Items for Students with Disabilities: Research Results – Coordinated Session**

### **Organizer/Moderator**

*Stephen N. Elliott, Vanderbilt University*

### **Participants**

Stephen N. Elliott, Vanderbilt University, Elizabeth Compton, Boise State University, Ryan J. Kettler, Vanderbilt University

*Alternate Assessments of Modified Achievement Standards: Research on More Accessible and Less Difficult Grade-Level Items for Students with Disabilities*

Andrew T. Roach, Georgia State University

*Students' Perspectives on Item Modifications: Using Cognitive Labs and Questionnaires*

Ryan J. Kettler, Vanderbilt University, Stephen N. Elliott, Vanderbilt University, Peter A. Beddow, Vanderbilt University, Alexander Kruz, Vanderbilt University  
*Access to a Better Assessment: How a Theoretical and Data-Based Modification Process Can Help Students Eligible for an AA-MAS*

Michael C. Rodriguez, University of Minnesota

*The Role of Item Response Attractors in the Modification of Test Items*

Wednesday, 2:15 p.m. - 3:45 p.m., Legends 3, H2

## Methodological Issues Related to NAEP – Paper Session

### Moderator

*Jennifer Dunn, Measured Progress*

### Presenters

Jaime Cid, James Madison University, Dorota Staniewska, Educational Testing Service

*Interrater Reliability Statistics for Trend Scoring in NAEP*

Liru Zhang, Delaware Department of Education, Shudong Wang, Educational Testing Service

*An Investigation of Using Postsmoothing Method to Improve Results of Linking a State Assessment to the 2003 NAEP Mathematics*

Deping Li, Educational Testing Service, Andreas Oranje, Educational Testing Service, Mei-Jang Lin, Educational Testing Service

*Analysis of NAEP Data Using a Hierarchical Latent Regression Model*

Andreas Oranje, Educational Testing Service, Dorota Staniewska, Educational Testing Service

*An Exploration of Model Reduction Approaches for Educational Survey Population Models*

### Discussant

*Matthew Johnson, Teachers College–Columbia University*

Wednesday, 2:15 p.m. - 3:45 p.m., Legends 4, H3

## **Issues in the Assessment of Dimensionality/Local Dependence – Paper Session**

### **Moderator**

*Michael Finger, American Institute of Certified Public Accountants*

### **Presenters**

Roy Levy, Arizona State University, Dubravka Svetina, Arizona State University  
*A New Statistic and Posterior Predictive Model Checking Procedure for  
Dimensionality Assessment in Multidimensional Item Response Theory*

Minhee Seo, University of North Carolina – Greensboro, Louis Roussos,  
Measured Progress  
*Evaluation of DIMTEST Effect-Size Measure and Its Application*

Doyoung Kim, American Institutes For Research, R.J. De Ayala, University of  
Nebraska, Ming-Chuan Hsieh, American Institutes For Research  
*Using Residual Correlations for Detecting Local Item Dependence (LID) in the  
Rasch Model*

Joshua Goodman, James Madison University, Richard Luecht, University of  
North Carolina – Greensboro  
*An Examination of the Residual Covariance Structures of Complex Performance  
Assessments Under Various Scaling and Scoring Methods*

### **Discussant**

*Holmes Finch, Ball State University*

Wednesday, 2:15 p.m. - 3:45 p.m., Legends 5, H4

## **New Directions in Test Scoring – Paper Session**

### **Moderator**

*Feifei Li, The University of Maryland*

### **Presenters**

Todd Rogers, University of Alberta

*A Comparison of Four Scoring Procedures for High-Stakes and Low-Stakes Examinations with Mixed Item Formats*

Jimmy de la Torre, Rutgers University, Hao Song, American Board of Internal Medicine

*A Comparison of Four Methods of IRT Subscoring*

Bruce Williams, ACT, Inc., Lisa Gawlick, ACT, Inc., Jie Li, ACT, Inc.

*Comparison of Indices of Classification Based on Adaptive Tests*

Lai Kwan Pei, Purdue University, Won-suk Kim, Measured Progress, Louis Roussos, Measured Progress

*Comparison of Raw Score and Diagnostic Model-based Methods for Profile Analysis*

### **Discussant**

*Dan Eignor, Educational Testing Service*

Wednesday, 2:15 p.m. - 3:45 p.m., Legends 6, H5

## **Item Exposure Control in CAT – Paper Session**

### **Moderator**

*Barbara Dodd, University of Texas-Austin*

### **Presenters**

Juan Ramon Barrada, Universidad Autonoma de Barcelona, Julio Olea, Universidad Autonoma de Madrid, Vicente Ponsoda, Universidad Autonoma de Madrid, Francisco Jose Abad, Universidad Autonoma de Madrid  
*Item Bank Disclosure in Computerized Adaptive Testing: What Makes an Item Selection Rule Safer?*

Qi Diao, Michigan State University, Wim van der Linden, CTB/McGraw-Hill, Shu Jing Yen, CTB/McGraw-Hill  
*Exposure Control Using Item-ineligibility Probabilities in Multidimensional Computerized Adaptive Testing with Shadow Test*

Matthew Grady, University of Texas – Austin, Barbara Dodd, University of Texas – Austin  
*Item Exposure Control Procedures for Mixed-Format Adaptive Testing with the Generalized Partial Credit Model*

Qing Yi, Pearson  
*The Impact of Ability Distribution Differences between Beneficiaries and Non-Beneficiaries on Test Security Control in CAT*

### **Discussant**

*Brian Bontempo, Mountain Measurement, Inc.*

Wednesday, 4:05 p.m. - 6:05 p.m., Legends 2, I1

**NCLB at Year 8 in the Assessment of English Language Learners:  
Taking Stock of the Assessment and Accountability Systems  
(National Association of Test Directors) – Invited Symposium**

**Organizer/Moderator**

*Phil Morse, Los Angeles Unified School District*

**Panelists**

Jamal Abedi, University of California – Davis

David Francis, University of Houston

Rebecca Kopriva, University of Wisconsin – Madison

**Discussants**

*Gregory Cizek, University of North Carolina – Chapel Hill*

*Robert Linquanti, WestEd*

Wednesday, 4:05 p.m. - 6:05 p.m., Legends 3, 12

## **Standard Setting in an Accountability Growth Context: A Process or One-Time Event? – Invited Symposium**

### **Organizer**

*Isaac I. Bejar, Educational Testing Service*

### **Presenters**

Michael Kane, National Conference of Bar Examiners

*Developing Tests and Standards That Promote Accountability and Growth*

Damian Betebenner, Center for Assessment

*Using Student Growth to Examine Across Grade Performance Level Expectations*

Steve Ferrara, American Institutes for Research, Dubravka Svetina, Arizona State University, Anne Davidson, Nevada Department of Education

*Knowledge and Skill Demands of Items that Indicate Grade-to-Grade Growth for Setting Performance Standards*

Jim Pellegrino, University of Illinois – Chicago

*Implications of the Learning Sciences for Assessment Design and Standard Setting*

David Abrams, New York State Education Department

*Standard Setting: A Policy Maker's Perspective*

### **Discussants**

*Robert Linn, University of Colorado – Boulder*

*Ronald K. Hambleton, University of Massachusetts*

Wednesday, 4:05 p.m. - 6:05 p.m., Legends 4, I3

## **Obtaining Diagnostic Information from Existing Large Scale Tests – Coordinated Session**

### **Organizers**

*Jonathan Templin, University of Georgia*

*Robert Henson, University of North Carolina – Greensboro*

### **Participants**

Neal Kingston, University of Kansas

*What Have We Learned about the Structure of Learning from 30 Years of Research on Integrated Cognitive-Psychometric Models? Not Much*

Allan Cohen, University of Georgia, Jonathan Templin, University of Georgia, Laine Bradshaw, University of Georgia

*Beyond Unidimensionality: Measuring All of Achievement*

John Willse, University of North Carolina – Greensboro

*Retrofitting Cognitive Diagnostic Models to Large Scale Tests: Problems with Dimensionality*

Terry Ackerman, University of North Carolina – Greensboro

*Using Confirmatory MIRT Modeling to Provide Diagnostic Information in Large Scale Assessment*

Robert Henson, University of North Carolina – Greensboro, Jonathan Templin, University of Georgia, Patrick Irwin, University of Kansas

*Ancillary Random Effects: A Way to Obtain Diagnostic Information from Existing Large Scale Tests*

Jonathan Templin, University of Georgia, Robert Henson, University of North Carolina – Greensboro

*Practical Issues in Using Diagnostic Estimates: Measuring the Reliability and Validity of Diagnostic Estimates*

### **Discussants**

*Jeffrey Douglas, University of Illinois – Urbana-Champaign*

*John Poggio, University of Kansas*



# San Diego, California

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Wednesday, 4:05 p.m. - 6:05 p.m., Legends 5, I4

## **Alternate Assessment Based on Alternate Achievement Standards: Improving Technical Rigor – Invited Symposium**

### **Organizer**

*Claudia Flowers, University of North Carolina – Charlotte*

### **Moderator**

*Martha Thurlow, University of Minnesota*

### **Presenters**

Diane Browder, University of North Carolina – Charlotte  
*Providing Meaningful Access to Grade Level Content Standards for Students  
with Significant Cognitive Disabilities*

Scott Marion, National Center for the Improvement of Educational Assessment,  
Inc., Jim Pellegrino, University of Illinois – Chicago  
*Validity Framework for Evaluating the Technical Quality of Alternate  
Assessments Based on Alternate Achievement Standards*

Linda Cook, Educational Testing Service  
*Issues Involved in Scaling Alternate Assessments Based on Alternate  
Achievement Standards*

Marianne Perie, National Center for the Improvement of Educational  
Assessment, Inc.  
*Standard Setting and Performance Level Descriptors for Alternate Assessments*

Stanley Rabinowitz, WestEd  
*States' Challenges and Successes in Developing and Implementing Alternate  
Assessments Based on Alternate Achievement Standards*

### **Discussants**

*Michael Kolen, University of Iowa*  
*Suzanne Lane, University of Pittsburgh*

Wednesday, 4:05 p.m. - 6:05 p.m., Legends 6, 15

## Small Sample Test Equating – Paper Session

### Moderator

Nancy Bené, American Nurses Credentialing Center

### Presenters

Sooyeon Kim, Educational Testing Service, Samuel Livingston, Educational Testing Service, Charles Lewis, Educational Testing Service

*Effectiveness of Collateral Information for Improving Equating in Small Samples*

Mark Darby, University of North Carolina – Greensboro, Kinge Mbella, University of North Carolina – Greensboro

*A Validation of the Circle-Arc Equating Method for Small Samples*

Sarah Hagge, University of Iowa, Jaehoon Seol, University of Iowa, Chunyan Liu, University of Iowa, Robert Brennan, University of Iowa

*Group Invariance: Examining the Adequacy of Linear Linking Methods for Small Samples*

Devdass Sunnasse, University of North Carolina – Greensboro, Zhan Shu, University of North Carolina – Greensboro

*Equating Accuracy Using Small Samples in the Single Group Design: A Comparison of Circle-Arc Equating with Traditional Observed Score Equating Methods*

### Discussant

Charles Mayenga, Assessment Strategies, Inc.

Wednesday, 4:05 p.m. - 6:05 p.m., The Edge, I6

## **Graduate Student Poster Session**

*(Sponsored by the Graduate Student Issues Committee)*

### **Organizers**

*Dubravka Svetina, Arizona State University  
Hi Shin Shim, Georgia Institute of Technology  
Sarah Hagge, University of Iowa  
Wendy Lam, University of Massachusetts  
Mary Roberts, University of Alberta*

### **Presenters**

Cigdem Alagoz, University of Georgia  
*An Investigation of the Model Fit for DINA with Fully Bayesian Estimation*

Stephanie Barclay McKeown, University of British Columbia, Nand Kishor,  
University of British Columbia  
*Investigating Statistical Limitations with BC Secondary School Rankings:  
A Multilevel Analysis*

Mustafa Kuzey Bilir, Florida State University, Akihito Kamata, Florida State  
University  
*Simultaneous Estimation of Differential Item Functioning for Manifest Groups  
and Latent Classes*

Daniel H. Breidenbach, Washington State University; Brian F. French,  
Washington State University  
*In Search of a Factor Model for the Brigance CIBS-II*

Pui Chi Chiu, University of Kansas, John C. Poggio, University of Kansas  
*The Effect of English Proficiency on Mathematics Performance: A Comparison of  
Item Response Theory-based Area and Mantel-Haenszel Methods*

Youn-jeng Choi, University of Georgia, Allan S. Cohen, University of Georgia  
*A Mixture Model Analysis of DIF on TIMSS2003*

Kyong Hee Chon, University of Iowa  
*Sparseness in Item Fit Table and Sampling Distribution of S-X2 and S-G2  
Statistics*

## NCME • 2009 Annual Meeting & Training Sessions

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Hyewon Chung, University of Texas – Austin, Tasha Beretvas, University of Texas – Austin

*The Performance of Fit Indices for Multi-group Confirmatory Factor Analysis with Non-normal Data: A Simulation Study*

Catherine N. Close, University of Minnesota, Robert Semmes, University of Minnesota, Mark L. Davison, University of Minnesota

*Measuring Average Speed of Numerical Reasoning*

Jenna M. Copella, University of Massachusetts – Amherst, Stephen Sireci, University of Massachusetts – Amherst

*Interpreting Non-Uniform DIF*

Drew Dallas, University of North Carolina – Greensboro, Fang Chen, University of North Carolina – Greensboro

*Evaluation of Self-Efficacy Using Manifest and Latent Variable Approaches*

Emily Fall, University of Kansas, Jonathan Templin, University of Georgia

*Probabilistic Q-matrix Specification in an Uncertain World: An Examination of Cognitive Diagnosis Models with Reading Comprehension Tests*

Katherine Furgol, University of Iowa; Andrew Ho, University of Iowa

*A Hierarchical Framework for Large-Scale Trend Analyses under NCLB*

Matthew Gaertner, University of Colorado – Boulder, Alexander Subert, University of Colorado – Boulder

*Measuring Academic Disadvantage in the Undergraduate Admissions Process*

Ariela C. Greenberg, University of Miami, Randall D. Penfield, University of Miami, Daryl B. Greenfield, University of Miami

*Fighting Bias with Statistics: Applying DIF and DDF to Detect Gender Differences in Responses to Items on a Preschool Science Assessment*

Krystal Hachey, University of Ottawa, Michel Rousseau, Université du Québec à Rimouski, Marielle Simon, University of Ottawa, Richard Bertrand, Université Laval

*Missing Data: How is it Handled?*

Leslie Hendrix, University of South Carolina, Brian Habing, University of South Carolina

*MCMC Estimation of the 3PL Model using Tsutakawa's Prior Parameterization*

Tao Hong, Purdue University, Ningying Wu, Purdue University, Susan J. Maller, Purdue University, Yi Li, Purdue University

*Assessing DIF in Polytomous Items Using the MIMIC Modeling Approach*

Chueh-An Hsieh, Michigan State University, Alexander Von Eye, Michigan State University

*The Best of Both Worlds: A Joint Modeling Approach for the Assessment of Change across Repeated Measurements*

Yan Huo, University of Illinois – Urbana-Champaign, Hua-Hua Chang, University of Illinois – Urbana-Champaign

*An index to compare variable-length CAT with fixed-length CAT*

Minjeong Jeon, University of California – Berkeley, Guemin Lee, Yonsei University

*A Comparison of Generalizability Theory and Multilevel Models for Estimating Conditional Standard Errors of Measurement for Testlet-based Tests*

Jung Jiyoung, Yonsei University, Guemin Lee, Yonsei University

*Effects of Correlation Coefficients between Total Test Score and Anchor Test Score on Equating*

Ja Young Kim, University of Iowa, Jaekyung Lee, State University of New York – Buffalo

*The Racial Academic Achievement Gap and English Language Learning (ELL) Factors: An Analysis of National Assessment of Educational Progress (NAEP) in Math and Reading*

Ji-Yoon Kim, Sung Kyun Kwan University, Kyung T. Han, Graduate Management Admission Council

*New Approaches to Test Equating: When Construct Response Items Are Used as Linking Items*

Yeonjeong Kim, Yonsei University, Sun-Young Kim, Yonsei University, Guemin Lee, Yonsei University

*An Investigation of Rater Effects in Oral Examination Using Generalizability Theory Approaches*

Nidhi Kohli, University of Maryland – College Park, Jennifer Koran, University of Maryland – College Park, André A. Rupp, University of Maryland – College Park

*An Alternative Comparison of Item and Person Statistics Based on Item Response Theory versus Classical Test Theory*

Sunbok Lee, University of Georgia, Jongmin Ra, University of Georgia, Youn-Jeng Choi, University of Georgia

*Entropic Prior Specification for Bayesian Methods in IRT*

Yi-Hung Lin, University of California – Berkeley, Wen-Chung Wang, Hong Kong Institute of Education

*A Testlet Response Theory Model for Ability-Based Guessing*

Pey-Yan Liou, University of Minnesota, Xin Liu, Pearson Clinical Assessment

*Evaluating Cross-Lingual Equating in Performance Assessments with an Application of DIAL-4*

## NCME • 2009 Annual Meeting & Training Sessions

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George MacDonald, University of South Florida, Yi-Hsin Chen, University of South Florida, Yuh-Chyn Leu, National Taipei University of Education  
*Exploring Cognitive Sources of Item Difficulty of Mathematic Fraction Items*

Yu Meng, University of Massachusetts – Amherst, Craig S. Wells, University of Massachusetts – Amherst, Ronald K. Hambleton, University of Massachusetts – Amherst  
*A Comparison of Methods for Handling Missing Data in Large-scale Assessment and the Impact on Assessing Dimensionality*

Amy Myers, Baylor University, Trena Wilkerson, Baylor University, Rachelle Meyer, Baylor University  
*Students, Teachers, and Mathematics Achievement in Fourth Grade Internationally*

Sungwon Ngudgratoke, Michigan State University  
*Exploring the Feasibility of Using Subscores to Improve Quality of Equating*

Maria Elena Oliveri, University of British Columbia, Brent D. Olson, University of British Columbia, Kadriye Ercikan, University of British Columbia, Bruno D. Gumbo, University of British Columbia  
*Methodologies for Investigating Construct Comparability in International Large-scale Assessments*

SeoHong Pak, Yonsei University, Keonseob Kim, Yonsei University, Guemin Lee, Yonsei University  
*An Investigation of Smoothing Effects on Linking Test Scores from Tests of Different Lengths*

Yoon Soo Park, Columbia University, Gee H. Kim, Columbia University, Minsun Cho, Columbia University, Young-Sun Lee, Columbia University  
*An Application of Mixed Rasch Model in Assessing K-3 Mathematics Cognitive Diagnostic Interview Measures*

Sonya Powers, University of Iowa, Kris Waltman, University of Iowa  
*Creating State Norms to Describe “Typical” Change in Student Achievement*

Anja Romhild, University of Nebraska – Lincoln, James A. Bovaird, University of Nebraska – Lincoln  
*The Effect of Guessing in Item Factor Analysis of Multiple-choice Data*

Dallie Sandilands, University of British Columbia, Maria Elena Oliveri, University of British Columbia  
*Validity and Score Comparability in Large-Scale Educational Assessments*

## San Diego, California

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Minhee Seo, University of Illinois – Urbana-Champaign, Yiming Jin, University of Illinois – Urbana-Champaign, Hua Hua Chang, University of Illinois – Urbana-Champaign

*Impacts of DIF on Item and Ability Estimate Calibration*

Dorota Staniewska, Rutgers University

*Examinee Ability Estimation under the Conditions of Speededness*

Chunxin Wang, University of Iowa

*An Investigation of IRT Models in Estimating Conditional Standard Errors of Measurement and Reliability*

Ting Xu, University of Pittsburgh, Kevin H. Kim, University of Pittsburgh, Feifei Ye, University of Pittsburgh

*Item Parameters Recovery for a Multilevel 2PL Item Response Model*

Na Yang, University of South Carolina, Jessalyn Smith

*Initial Estimates for the “Mixed Exam” Items*

Hanwook Yoo, University of Massachusetts – Amherst, Ronald K. Hambleton, University of Massachusetts – Amherst

*Detection of Exposed Test Items in Computer-Based Testing Environments*

Ji Zeng, University of Michigan, Joseph A. Martineau, Michigan Department of Education

*Objective Extension and Evaluation of a Vector-Based Approach to Dimensionality Assessment*

Xiuyuan Zhang, University of Pennsylvania, Paul A. McDermott, University of Pennsylvania

*Performance of Full-Information Factor Analysis and Parallel Analysis with Unidimensional Binary Data*

Xiaowen Zhu, University of Pittsburgh, Clement A. Stone, University of Pittsburgh

*Detecting Local Dependence of Performance-based Items using Bayesian Analysis*

# NCME • 2009 Annual Meeting & Training Sessions

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Thursday, 5:45 a.m. - 7:30 a.m., Hard Rock Hotel Lobby

## **NCME Fitness Run/Walk**

### **Organizers**

*Brian F. French, Purdue University*

*Jill van den Heuvel, CTB/McGraw-Hill*

Run a 5K or walk a 2.5K course along the waterfront. Meet in the lobby at 5:45 a.m. Pre-registration is required.

The event is made possible through the sponsorship of:

ACT, Inc.

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The College Board

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Educational Testing Service

GED Testing Service/American Council on Education

Graduate Management Admission Council

Law School Admission Council

National Board of Medical Examiners (NBME)



Thursday, 8:15 a.m. - 10:15 a.m., Legends 2, J1

## **Individual Score Validity: How Unexpected Interaction Between a Test and a Test Taker Influences the Usefulness of a Test Score – Coordinated Session**

### **Organizer/Moderator**

*G. Gage Kingsbury, Northwest Evaluation Association*

### **Participants**

Steven L. Wise, Northwest Evaluation Association, G. Gage Kingsbury, Northwest Evaluation Association, Carl Hauser, Northwest Evaluation Association

*A Generalized Framework for Identifying Individual Score Validity (ISV) in a Variety of Testing Settings*

Carl Hauser, Northwest Evaluation Association, G. Gage Kingsbury, Northwest Evaluation Association

*ISV in a Modest-Stakes Adaptive Educational Testing Setting*

Lisa F. Smith, University of Otago, Steven L. Wise, Northwest Evaluation Association, Christine E. DeMars, James Madison University

*ISV and Student Effort in Higher Education Assessment*

G. Gage Kingsbury, Northwest Evaluation Association, Kathleen A. Gialluca, Pearson

*ISV in a High-Stakes Licensure Testing Setting*

Stephen Slater, Oregon Department of Education

*ISV in an NCLB Testing Setting*

### **Discussant**

*Anthony R. Zara, Pearson*

Thursday, 8:15 a.m. - 10:15 a.m., Legends 3, J2

## Item Bias and Measurement Invariance – Paper Session

### Moderator

*Stanley Rabinowitz, WestEd*

### Presenters

Anita Rawls, University of South Carolina  
*Measurement Invariance at the Construct and Item Levels*

Randall Penfield, University of Miami  
*A Comparison of Legal and Professional Standards of Fairness in High-Stakes Testing: Where do they intersect?*

Jodi Casabianca, Fordham University, Charles Lewis, Fordham University  
*Equivalent Item Functioning Detection with Empirical Bayes Estimates*

Akihito Kamata, Florida State University, Rae-Seon Kim, Florida State University, Mustafa Kuzey Bilir, Florida State University  
*Investigation of the Utility of the Bayesian Mixture-Item DIF Detection Model*

Bihua Xiang, Educational Testing Service, Xuan Tan, Educational Testing Service, Neil J. Dorans, Educational Testing Service, Yanxuan Qu, Educational Testing Service  
*The Value of the Studied Item in the Matching Criterion in DIF Analysis*

Rachael Jin Bee Tan, Schroeder Measurement Technologies, Inc.  
*A Mixed-Methods Approach to Test Fairness*

### Discussant

*Neal Kingston, University of Kansas*

Thursday, 8:15 a.m. - 10:15 a.m., Legends 4, J3

## **Mixture IRT Models – Paper Session**

### **Moderator**

*Joshua Goodman, James Madison University*

### **Presenters**

Hong Jiao, University of Maryland, Shudong Wang, Educational Testing Service,  
Ru Lu, University of Maryland

*Mixture Rasch Model for Dichotomously Scored Testlet Based Assessments*

Christine Shea, University of Massachusetts

*Using a Mixture IRT Model to Understand Second Language Learner  
Performance on Large-scale Assessments*

Daniël Van Nijlen, KU Leuven, Rianne Janssen, KU Leuven

*Explaining Guessing Behavior by Means of Explanatory Mixture Models*

Dipendra Subedi, American Institutes for Research, Mark Reckase, Michigan  
State University

*Modeling an “Unscalable Class” using Item Response Theory Mixture Models*

Ru Lu, University of Maryland, Hong Jiao, University of Maryland

*Detecting DIF using Mixture Rasch Model*

### **Discussant**

*Daniel Bolt, University of Wisconsin – Madison*

Thursday, 8:15 a.m. - 10:15 a.m., Legends 5, J4

## Comparisons of Linking and Equating Designs – Paper Session

### Moderator

Joanna Tomkiewicz, CTB/McGraw-Hill

### Presenters

Gautam Puhan, Educational Testing Service

*Chained Versus Post Stratification Equating: An Evaluation using Empirical Data*

Rianne Janssen, KU Leuven, David Magis, KU Leuven, Ernesto San Martin, Pontificia Universidad Catolica de Chile, Guido Del Pino, Pontificia Universidad Catolica de Chile

*Local Equating Methods in the NEAT Design*

Mayuko Simon, University of Minnesota, Mark Davison, University of Minnesota

*Comparison of Concurrent and Separate Multidimensional IRT Linking of Item Parameters*

Pauline Parker, University of Massachusetts, Lisa Keller, University of Massachusetts, Robert Keller, Measured Progress, Alina von Davier, Educational Testing Service

*The Examination of Four Equating Methods: The Effects of Reclassifying Students into Performance Categories and the Population Sensitivity Assumption*

Yingchen Wang, University of North Carolina – Greensboro, Minh Duong, Michigan State University

*Sensitivity of Linking Functions to the Secondary Trait Introduced by the Test*

### Discussant

Jonathan Beard, University of Iowa

Thursday, 8:15 a.m. - 10:15 a.m., Legends 6, J5

## **Test Use in Special Populations – Paper Session**

### **Moderator**

*Kadriye Ercikan, University of British Columbia*

### **Presenters**

Xia Mao, Pearson, Steven Fitzpatrick, Pearson

*An Investigation of the Linking of Mathematics Tests with and without Linguistic Simplification*

Scott Elliot, SEG Assessment | SEG Research

*A Model for Validating Assessments that Accompany Commercially Published Textbooks and Instructional Programs*

Jennifer Dunn, Measured Progress, Melissa Fincher, Georgia Department of Education

*A Framework for Identifying and Evaluating Item Alterations Designed for Persistently Low Performing Students*

Ming Xu, New York State Education Department, Zhen (Jane) Wang, Pearson, Sz-Shyan Wu, New York State Education Department

*A Predictive Validity Study of an English Language Proficiency Test*

Eric Hansen, Educational Testing Service, Diego Zapata-Rivera, Educational Testing Service, Mingyu Feng, Worcester Polytechnic Institute

*Beyond Accessibility: Evidence Centered Design for Improving the Efficiency of Learning and Assessment*

Eunju Jung, University of Oregon, Paul Yovanoff, University of Oregon

*Calibrating a Mathematics Alternate Assessment Designed for Students with Disabilities Using General Education Student Data*

### **Discussant**

*Pat Almond, University of Oregon*

Thursday, 10:35 a.m. - 12:05 p.m., Legends 2, K1

## **Bradley Hanson: The Man behind the Award and His Legacy as a Psychometrician – Invited Symposium**

### **Organizer/Moderator**

*Jimmy de la Torre, Rutgers University*

### **Presenters**

Deborah Harris, ACT, Inc.

*The Bradley Hanson Award, and the Man It Honors*

Gary Skaggs, Virginia Polytechnic Institute and State University

*Facilitating Psychometric Software Exchange*

Won-Chan Lee, University of Iowa

*Current Development and Issues in Estimating Classification Consistency and Accuracy*

Jianbin Fu, Educational Testing Service

*A General Program for Item Response Theory Models in R*

Xiaohong Gao, ACT, Inc., Deborah Harris, ACT, Inc.

*Domain Scores: The Continued Influence of Brad on a Line of Research*

Anton Béguin, CITO, Institute of Educational Measurement

*Robustness of IRT Equating*

### **Discussant**

*Richard Patz, CTB/McGraw-Hill*

# San Diego, California

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Thursday, 10:35 a.m. - 12:05 p.m., Legends 3, K2

## **Validating Educational Assessments for Special Populations Using Cognitive Methods: Students with Disabilities, English Language Learners, and American-Indian Students – Coordinated Session**

### **Organizer/Moderator**

*Maria Martiniello, Educational Testing Service*

### **Participants**

Christopher Johnstone, National Center for Educational Outcomes, Kristi Liu, National Center for Educational Outcomes, Jason Altman, National Center for Educational Outcomes, Martha Thurlow, National Center for Educational Outcomes

*Student Think Aloud Reflections on Comprehensible and Readable Assessment Items: Perspectives on What Does and Does Not Make an Item Readable for Students with Disabilities*

Teresa King, Educational Testing Service, Cara Cahalan Laitusis, Educational Testing Service

*Methodology, Protocol, and Issues to Consider in Cognitive Interviews with Students with Disabilities*

Claire Melican, Educational Testing Service, Benjamin Orchard, Educational Testing Service

*Using Cognitive Laboratory Methods to Develop Background Questions for the National Indian Education Study*

Maria Martiniello, Educational Testing Service

*Determining Construct-Irrelevant Variance in Mathematics Assessments of English Language Learners Through the Use of Think-Aloud Protocols*

Therese Carr, Center for Applied Linguistics, Cathy Cameron, Center for Applied Linguistics, Jim Bauman, Center for Applied Linguistics, Rebecca Kopriva, University of Wisconsin – Madison

*Thinking Out Loud: Using Cognitive Labs to Investigate English Learners' Interactions with Dynamic Computer-Based Science Items*

### **Discussant**

*Kristen Huff, College Board*

Thursday, 10:35 a.m. - 12:05 p.m., Legends 4, K3

## **Test Speededness and Consequences – Paper Session**

### **Moderator**

*Jonathan Templin, University of Georgia*

### **Presenters**

Sun-Joo Cho, University of California – Berkeley, Paul De Boeck, KU Leuven,  
Mark Wilson, University of California – Berkeley

*Secondary Dimension Modeling of DIF: A Mixture Approach for Test  
Speededness*

Aijun Wang, University of Georgia, Allan Cohen, University of Georgia  
*A Mixture Nominal Response Model for Test Speededness*

Hua Wei, Pearson

*The Effect of Test Speededness on Item and Ability Parameter Estimates in  
Multidimensional IRT Models*

Changjiang Wang, Pearson, Hua Wei, Pearson, Lingyun Gao, Pearson  
*Investigating the Effects of Speededness on Test Dimensionality*

### **Discussant**

*André Rupp, University of Maryland*



Thursday, 10:35 a.m. - 12:05 p.m., Legends 5, K4

## **Anchor-Test Design Issues in Equating – Paper Session**

### **Moderator**

*Alvaro Arce-Ferrer, Pearson*

### **Presenters**

Tian Song, Michigan State University, Alvaro Arce-Ferrer, Pearson  
*Comparing IPD Detection Approaches in Common-item Nonequivalent Group Equating Design*

Hanwei Chen, ACT, Inc., Cui Zhongmin, ACT, Inc., Gao Xiaohong, ACT, Inc.,  
Zhu Rongchun, ACT, Inc.  
*Evaluating the Impact of Varying Group Abilities on Different Equating Methods Under the Common-Item Nonequivalent Groups Design*

Michael Mekhael, Educational Testing Service, Wenmin Zhang, Educational  
Testing Service, Jing Miao, Educational Testing Service  
*The Robustness of Tucker and Levine Observe Equating Methods in the Nonequivalent Group Anchor-Test Design*

Patrick Meyer, University of Virginia, Karen Barton, CTB/McGraw-Hill  
*An Examination of the Influence of Common Item Sampling on the Standard Error of Equating*

### **Discussant**

*Liru Zhang, Delaware Department of Education*

Thursday, 10:35 a.m. - 12:05 p.m., Legends 6, K5

## **CAT Strategies – Paper Session**

### **Moderator**

*Frederick McHale, Educational Testing Service*

### **Presenters**

Alan Huebner, ACT, Inc., Jeff Douglas, University of Illinois – Urbana-Champaign  
*Multidimensional  $\alpha$ -Stratified Computerized Adaptive Testing*

Yueh-Mei Chien, Pearson, Chingwei David Shin, Pearson, Denny Way, Pearson  
*Weighted Penalty Model for Content Balancing in CAT*

Leslie Keng, Pearson, Barbara Dodd, University of Texas – Austin  
*A Comparison of the Performance of Testlet-Based Computer Adaptive Tests and Multistage Tests*

Tsung-Han Ho, University of Texas – Austin, Barbara Dodd, University of Texas – Austin  
*A Comparison of Item Selection Procedures Using Different Ability Estimation Methods in CAT Based on the Generalized Partial Credit Model*

### **Discussant**

*Krista Breithaupt, American Institute of Certified Public Accountants*

Thursday, 12:25 p.m. - 1:55 p.m., Legends 2, L1

## **Inconsistency of Scaling Function: Scale Drift or Sound Equating? – Coordinated Session**

### **Organizers/Moderators**

*Jinghua Liu, Educational Testing Service*

*Shelby Haberman, Educational Testing Service*

### **Participants**

Shelby Haberman, Educational Testing Service, Neil Dorans, Educational Testing Service

*Scale Consistency, Drift, Stability: Definitions, Distinctions and Principles*

Shelby Haberman, Educational Testing Service, Yi-Hsuan Lee, Educational Testing Service, Jiahe Qian, Educational Testing Service, Frederic Robin, Educational Testing Service

*Re-sampling and Evaluation of Equating Errors*

Hongwen Guo, Educational Testing Service, Jinghua Liu, Educational Testing Service, Shelby Haberman, Educational Testing Service, Neil Dorans, Educational Testing Service

*Consistency of SAT® Reasoning Score Conversions*

Deping Li, Educational Testing Service, Shuhong Li, Educational Testing Service

*Time Series Assessment on Scale Consistency*

Jinghua Liu, Educational Testing Service, Edward Curley, Educational Testing Service, Albert Low, National Board of Medical Examiners

*A Scale Drift Study*

### **Discussants**

*Mary Pommerich, Defense Manpower Data Center*

*Nancy Peterson, ACT, Inc.*

Thursday, 12:25 p.m. - 1:55 p.m., Legends 3, L2

## **Performance Assessment and Related Methodology – Paper Session**

### **Moderator**

*Jill van den Heuvel, CTB/McGraw-Hill*

### **Presenters**

Fang Chen, University of North Carolina – Greensboro

*HLM Cross-Classification Models in the Application of Rater-Task Study*

Carina McCormick, University of Nebraska, Kurt Geisinger,  
University of Nebraska

*The Potential for Interrater Reliability Inflation with Tertium Quid Rater  
Adjudication: A Simulation*

Jongmin Ra, University of Georgia, Sunbok Lee, University of Georgia

*Hierarchical Bayesian Approach for Rater Effects on Speaking Performance*

Luz Bay, Measured Progress, Kelly Ickes, Measured Progress, Kevin Haley,  
Measured Progress

*Level of Complexity: A Study on Composite Scores in a Portfolio Type Alternate  
Assessment*

### **Discussant**

*Jill van den Heuvel, CTB/McGraw-Hill*

Thursday, 12:25 p.m. - 1:55 p.m., Legends 4, L3

## **DIF Detection using Logistic Regression – Paper Session**

### **Moderator**

*Catherine Taylor, University of Washington*

### **Presenters**

Brian French, Washington State University, Holmes Finch, Ball State University  
*Hierarchical Logistic Regression: Accounting for Multilevel Data in DIF Detection*

Seung Choi, Northwestern University, Laura Gibbons, University of Washington – Seattle, Paul Crane, University of Washington – Seattle  
*Development of Freeware for an Iterative Hybrid Ordinal Logistic Regression/IRT DIF*

Lai Kwan Pei, Purdue University, Jun Li, University of California – Riverside  
*Effects of Unequal Variance in Ability Distribution on the Performance of SIBTEST, Mantel-Haenszel, IRT Likelihood Ratio and Logistic Regression for DIF Detection*

Ya-Hui Su, University of California – Berkeley, Wen-Chung Wang, Hong Kong Institute of Education  
*A New Application of Logistic Regression Procedure on Differential Item Functioning Detection*

### **Discussant**

*Randall Penfield, University of Miami*

Thursday, 12:25 p.m. - 1:55 p.m., Legends 5, L4

## **Score Reporting – Paper Session**

### **Moderator**

*Thanos Patelis, College Board*

### **Presenters**

Lihua Yao, Defense Manpower Data Center

*Reporting Valid and Reliable Overall Score and Domain Score*

Ying Lu, Educational Testing Service, Robert Smith, Educational Testing Service

*An Alternative Method to Estimate Cluster Performance of Proficient Students on a Large Scale State Assessment*

Guangming Ling, Educational Testing Service

*Report Subscores or Not? Evaluating Subscore Reliability and Internal Test Structure*

Gavin Brown, Hong Kong Institute of Education, John Hattie, University of Auckland

*Understanding Teachers' Thinking About Assessment: Insights for Developing Better Educational Assessments.*

### **Discussant**

*Marc Julian, CTB/McGraw-Hill*

Thursday, 12:25 p.m. - 1:55 p.m., Legends 6, L5

## **Test Equating with Constructed-Response Items and Mixed-Format Tests – Paper Session**

### **Moderator**

*Amy Schmidt, Educational Testing Service*

### **Presenters**

Ningying Wu, Purdue University, Chi-Yu Huang, ACT, Inc., NooRee Huh, ACT, Inc., Deborah Harris, ACT, Inc.

*Robustness in Using Multiple-Choice Items as External Anchor for Constructed-Response Test Equating*

Xuan Tan, Educational Testing Service, Sooyeon Kim, Educational Testing Service, Insu Paek, Educational Testing Service

*An Alternative to the Trend Scoring Method for Adjusting Scoring Shifts in Mixed-Format Tests*

Yi Cao, ACT, Inc., Robert Lissitz, University of Maryland

*Mixed-Format Test Equating: Effects of Test Dimensionality and Common-Item Sets*

Michael Walker, Educational Testing Service, Sooyeon Kim, Educational Testing Service

*Linking Mixed-Format Tests Using Multiple Choice Anchors*

### **Discussant**

*Ye Tong, Pearson*

# NCME • 2009 Annual Meeting & Training Sessions

Thursday, 2:15 p.m. - 3:45 p.m., Legends 2, M1

## **Flight or Fancy: Innovations in Comparability, Computer-Interactive, and Other Things Testing – Coordinated Session**

### **Organizer**

*Rebecca Kopriva, University of Wisconsin – Madison*

### **Moderator**

*Therese G. Carr, Center for Applied Linguistics*

### **Participants**

Rebecca Kopriva, University of Wisconsin-Madison, James Bauman, Center for Applied Linguistics, David Gabel, Center for Applied Linguistics

*What Happens when Large-scale Items Actually Use the Computer's Capabilities? Exploring Issues and Redefining Challenges*

Edys S. Quellmalz, WestEd

*Simulations for Quality Formative and Summative Assessment*

Phoebe C. Winter, Consultant

*Comparing "Apples to Apples": Challenges and Approaches to Establishing the Comparability of Alternate Test Forms*

Therese G. Carr, Center for Applied Linguistics, Rebecca Kopriva, University of Wisconsin – Madison

*It's About Time: Matching English Learners and the Ways they take Tests by Using an Online Tool to Properly Address Individual Needs*

### **Discussants**

*James W. Pellegrino, University of Illinois – Chicago*

*Sue Rigney, U.S. Department of Education*



Thursday, 2:15 p.m. - 3:45 p.m., Legends 3, M2

## **How to Build a Cognitive Model for Educational Assessments – Coordinated Session**

### **Organizer**

*Joanna Gorin, Arizona State University*

### **Moderator**

*Roy Levy, Arizona State University*

### **Participants**

Jacqueline Leighton, University of Alberta

*Exploratory and Confirmatory Methods for Cognitive Model Development*

Mark Gierl, University of Alberta, Cecelia Alves, University of Alberta, Andrea  
Gotzmann, University of Alberta, Mary Roberts, University of Alberta

*Using Judgments from Content Specialists to Develop Cognitive Models for  
Diagnostic Assessments*

Joanna Gorin, Arizona State University, Dubravka Svetina, Arizona State  
University

*Using Digital Eye-Tracking to Develop Cognitive Models of Assessment Items*

Derek Briggs, University of Colorado, Alicia Alonzo, University of Iowa

*Building Learning Progressions as a Cognitive Model for Ordered-Multiple  
Choice Items*

### **Discussants**

*David Lohman, University of Iowa*

*Kristen Huff, College Board*

Thursday, 2:15 p.m. - 3:45 p.m., Legends 4, M3

## **Estimation Issues in Multidimensional IRT – Paper Session**

### **Moderator**

*Lihua Yao, Defense Manpower Data Center*

### **Presenters**

Sung-Hyuck Lee, ACT, Inc., Joseph Rodgers, University of Oklahoma,  
Robert Terry, University of Oklahoma  
*Multidimensional Item Calibration in SAS*

Priya Kannan, University of Pittsburgh, Kevin H. Kim, University of Pittsburgh  
*Item Parameter Recovery for a Within-item Multidimensional Graded Response Model: A SEM-CFA perspective*

Yu Fang, ACT, Inc., Mark Reckase, Michigan State University  
*Using a Projection Method to Estimate Subscores from Tests with Multidimensional Structures*

Qiong Wu, Pennsylvania State University, Pui-Wa Lei, Pennsylvania State University  
*Using Multi-group Confirmatory Factor Analysis to Detect DIF when Tests are Multidimensional*

### **Discussant**

*James Roberts, Georgia Institute of Technology*

# San Diego, California

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Thursday, 2:15 p.m. - 3:45 p.m., Legends 5, M4

## **Reliability, Consistency, and Generalizability – Paper Session**

### **Moderator**

*Michael Rodriguez, University of Minnesota*

### **Presenters**

Sonya Powers, University of Iowa, Robert Brennan, University of Iowa  
*Multivariate Generalizability Analyses of Mixed-Format Exams*

Ernest Davenport, University of Minnesota, Pey-Yan Liou, University of Minnesota  
*Internal Consistency: A Concept Whose Time Has Come*

Tawnya Knupp, University of Iowa, Won-Chan Lee, University of Iowa,  
Timothy Ansley, University of Iowa  
*A Method for Estimating Decision Consistency Using Composite Scores In an IRT Framework*

Jinnie Choi, University of California – Berkeley, Derek Briggs, University of Colorado – Boulder, Mark Wilson, University of California – Berkeley  
*Multidimensional Extension of the Generalizability in Item Response Modeling (GIRM)*

### **Discussant**

*Mark Albanese, University of Wisconsin-Madison*

Thursday, 2:15 p.m. - 3:45 p.m., Legends 6, M5

## Equating with Testlets – Paper Session

### Moderator

*Kathleen A. Gialluca, Pearson*

### Presenters

Guemin Lee, Yonsei University, In-Yong Park, Yonsei University  
*Testlet Response Model for IRT True Score Equating*

Steffen Brandt, Universität Kiel  
*Modeling Item Order Effects Using the Rasch Testlet Model*

Dongyang Li, University of Maryland  
*Developing a Common Scale for Testlet Model Parameters Using a Test Characteristic Curve Scaling Method*

Wei He, Michigan State University, Rui Gao, Educational Testing Service  
*Does Pre-equating Work? An Investigation into Pre-equated Testlet-Based CLEP Exam Using Post Administration Data*

### Discussant

*Deborah Harris, ACT, Inc.*

Thursday, 4:05 p.m. - 6:05 p.m., Legends 3, N1

## **Comparability of Paper-and-Pencil and Computer-Based Exams – Paper Session**

### **Moderator**

*Robert Dolan, Pearson*

### **Presenters**

Do-Hong Kim, University of North Carolina – Charlotte, Huynh Huynh, University of South Carolina

*Using Multi-Level Structural Models to Explore Comparability between Paper-and-Pencil and Computer-Based Testing Modes for a Literacy Test*

Adisack Nhounyvanisvong, Data Recognition Corporation, Djibril Liassou, Data Recognition Corporation, Takeshi Terada, Data Recognition Corporation

*Developing a Cognitive Framework to Investigate the Comparability of Computer-based and Paper-and-Pencil Reading and Mathematics Items*

Douglas Glasnapp, University of Kansas, John Poggio, University of Kansas, Jorge Carvajal, University of Kansas, Andrew Poggio, Computerized Assessments and Learning

*More Evidence: Computer vs. Paper and Pencil Delivered Test Comparability*

Hui-Mei Fan, University of Iowa, Walter Vispoel, University of Iowa

*A Meta-Analysis of Comparability of Scores Yielded by Computerized and Paper-and-Pencil Reading Tests*

Katie McClarty, Pearson, Chow-Hong Lin, Pearson, Jadie Kong, Pearson

*How Many Students Do You Really Need? The Effect of Sample Size on the Matched Samples Comparability Analysis*

### **Discussant**

*Gary Schaeffer, CTB/McGraw-Hill*

Thursday, 4:05 p.m. - 6:05 p.m., Legends 5, N2

## Measurement of Growth – Paper Session

### Moderator

Tasha Beretvas, University of Texas–Austin

### Presenters

Vanessa Thompson, Georgia Institute of Technology, Ou Lydia Liu, Educational Testing Service, John Young, Educational Testing Service

*Measuring Value-Added in Higher Education Using MAPP: A Multi-level Approach*

Jennifer Koran, University of Maryland

*An Integrated Item Response Model for Evaluating Individual Students' Growth in Educational Achievement*

Mark Albanese, University of Wisconsin School of Medicine and Public Health

*Effects of Confounding on Correlations, Factor Analysis and Reliability Estimates*

HeeKyoung Kim, Korea Institute for Curriculum and Evaluation, Seonghoon Kim, Keimyung University

*Effect of Psychometric Methods on Group-Level Assessment of Year-to-Year Change*

Feifei Ye, University of Pittsburgh, Wenyi You, Pearson, Ting Xu, University of Pittsburgh

*Multilevel Item Response Model for Longitudinal Data*

G. Anthony Benners, Fordham University, Howard Everson, Fordham University

*School Effects on Gender Differences in Learning Mathematics During High School: A Multiple Group Multilevel Latent Growth Analysis of PSAT/NMSQT to SAT Performance in Mathematical Reasoning*

### Discussant

Jee-Seon Kim, University of Wisconsin–Madison

Thursday, 4:05 p.m. - 6:05 p.m., Legends 4, N3

## **Novel Applications of Response-Time Modeling in Educational Measurement – Coordinated Session**

### **Organizer/Moderator**

*Wim J. van der Linden, CTB/McGraw-Hill*

### **Participants**

James A. Wollack, University of Wisconsin – Madison, Vincent Woo, University of Wisconsin – Madison

*Using Response Times to Improve Parameter Estimation for Speeded Test Items*

Richard D. Schwarz, CTB/McGraw-Hill

*Examining Time-to-Score as a Rater Characteristic and as a Property of Constructed Response Items*

Rinke H. Klein Entink, University of Twente, Joerg-Tobias Kuhn, Muenster University, Lutz F. Hornke, Aachen University, Jean-Paul Fox, University of Twente

*Joint Modeling of Responses and Response Times to Evaluate Cognitive Theory about Item Solving Behavior*

Steven L. Wise, Northwest Evaluation Association, G. Gage Kingsbury, Northwest Evaluation Association

*Response Time and Examinee Test-Taking Effort: Measurement and Modeling Issues*

Wim J. van der Linden, CTB/McGraw-Hill

*Response-Time-Based Detection of Collusion between Test Takers*

### **Discussant**

*Jeffrey A. Douglas, University of Illinois – Urbana-Champaign*

Thursday, 4:05 p.m. - 6:05 p.m., Legends 2, N4

## **The State of the State Assessments: Where We Are and Where We Are Heading – Coordinated Session**

### **Organizer**

*Lei Yu, Pacific Metrics*

### **Moderator**

*Sharon Slater, Educational Testing Service*

### **Participants**

Anita Rawls, University of South Carolina, Lei Yu, Educational Testing Service, Yuming Liu, Educational Testing Service

*An Overview of Computer-Based Testing in State Assessments*

Adrienne Sgammato, University of North Carolina – Chapel Hill, Sharon Slater, Educational Testing Service

*Standard Setting within the Context of No Child Left Behind*

Sultan Turkan, University of Arizona, Ying Lu, Educational Testing Service

*Testing English Language Learners under NCLB*

Lei Yu, Educational Testing Service, Yue Zhao, Educational Testing Service

*Validation for State Assessments*

Sharon Slater, Educational Testing Service, Carolyn Wentzel, Educational Testing Service, Linda Chard, Educational Testing Service

*Applications of Longitudinal Data to Monitor Student Growth within the Framework of the No Child Left Behind Act*

### **Discussants**

*Gregory Cizek, University of North Carolina – Chapel Hill*

*Ronald Hambleton, University of Massachusetts*



Thursday, 4:05 p.m. - 6:05 p.m., Legends 6, N5

## **Large-Scale Assessment: Issues and Applications – Paper Session**

### **Moderator**

*Furong Gao, CTB/McGraw-Hill*

### **Presenters**

Katrin Böhme, IQB – Humboldt University, Alexander Robitzsch, IQB – Humboldt University

*Rater-Effects and Rater Inconsistency in Large-Scale Assessment of Writing Ability*

Jiahe Qian, Educational Testing Service, Scott Davis, Educational Testing Service

*An Investigation of the Position Effects in Large-scale Writing Assessments*

Xueli Xu, Educational Testing Service, Yue Jia, Educational Testing Service

*On Regression with Skewed Noise*

Barbara Donahue, National Foundation for Educational Research, Louise Maycock, National Foundation for Educational Research, Alison Wood, National Assessment Agency, Tom Benton, National Foundation for Educational Research

*Factors Influencing the Pretest Effect*

Tony Thompson, Pearson

*Scale Construction and Conditional Standard Errors of Measurement*

### **Discussant**

*Mark Shermis, University of Florida*

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Thursday, 4:00 p.m. - 7:00 p.m., Watchtower

### **NCME Board of Directors Meeting**

Members of NCME are invited to attend as observers.

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