

The 77th Annual Meeting of the Psychometric Society

Lincoln, Nebraska

Pre-Conference Workshop
July 9, 2012

Annual Meeting
July 10-12, 2012

UNIVERSITY OF
Nebraska
Lincoln

**Psychometric
Society**

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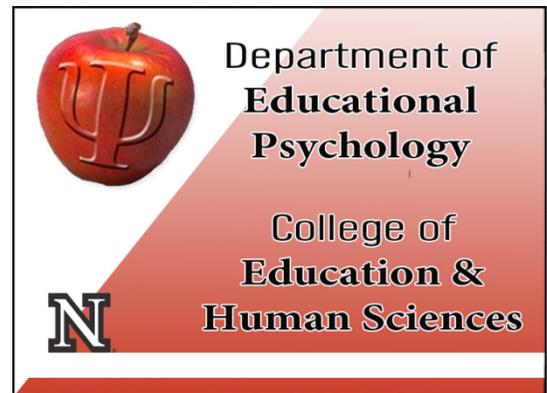
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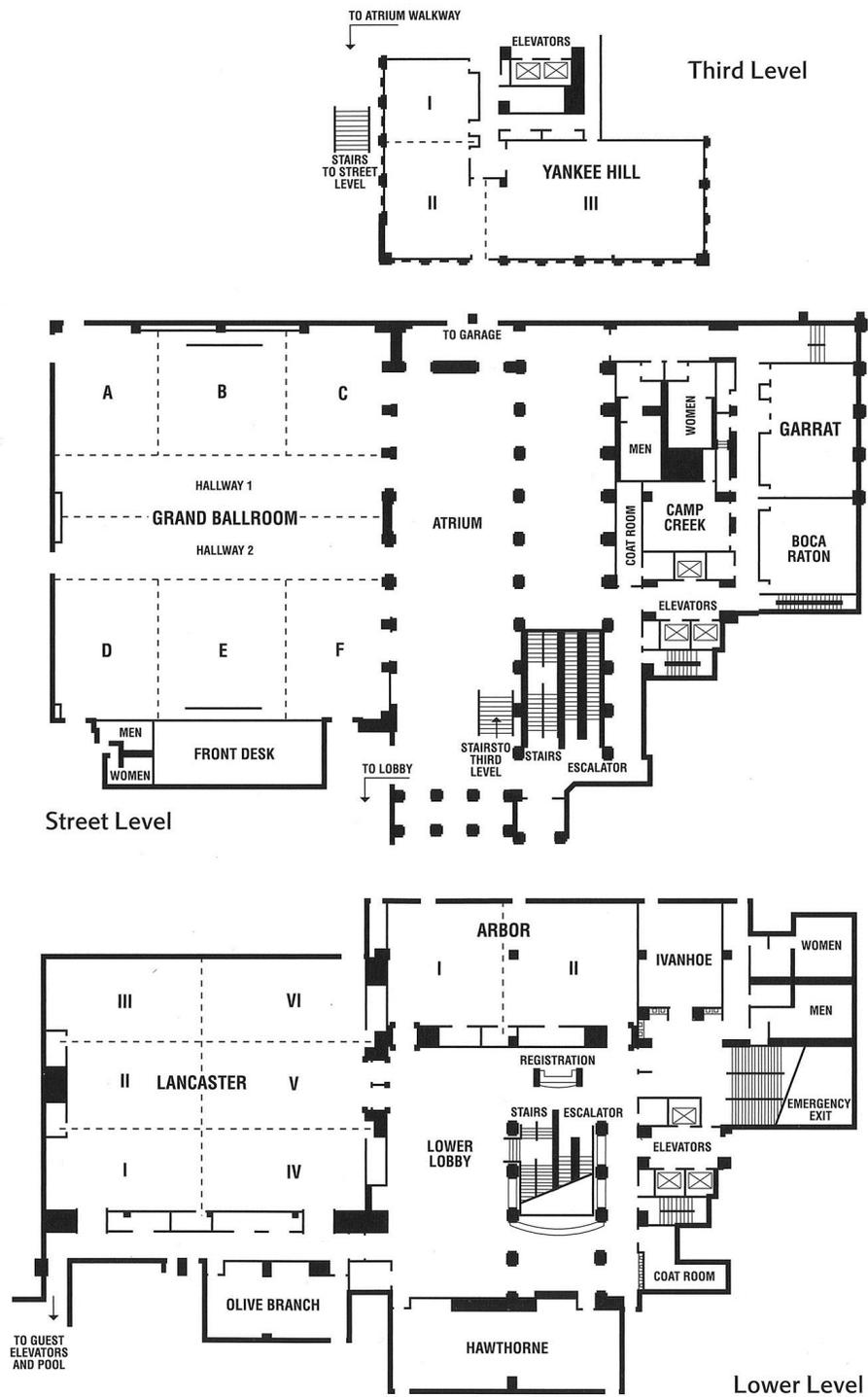


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The Psychometric Society is very grateful to the above organizations for their generous financial support of our 2012 Annual Meeting.

Hotel Map



Schedule at a Glance

Monday, 7/9/2012

Begin	End		Arbor I	Arbor II	Olive Branch	Boca Raton
9:00	12:00		Workshop 1: Psychometrics with R	Workshop 2: Analyzing Large Scale Assessment Data with the General Diagnostic Model	Workshop 3: Models of measurement: from an engineering point of view	
12:00	1:30	Lunch				Editorial Council Meeting; 12:00 - 1:30
1:30	2:00		Workshop 1: Psychometrics with R	Workshop 2: Analyzing Large Scale Assessment Data with the General Diagnostic Model		
2:00	3:00		Workshop 1	Workshop 2		Board of Trustees Meeting; 2:00-3:30
3:00	4:30		Workshop 1	Workshop 2		

Legend:

SoA = State of the Art

Inv. Symp. = Invited Symposium

Inv. Talk = Invited Talk

Tuesday, 7/10/2012

Begin	End		Ballroom	Lancaster I, II, III	Lancaster IV, V, VI	Olive Branch	Arbor I	Arbor II	Yankee Hill III	Yankee Hill I, II	Atrium
8:00	8:55		Welcome								
9:00	9:50		Keynote Address: Modeling Mediation: Causes, Markers, and Mechanisms								
9:55	10:20			SOA: Multiple Imputation: State of the art and future directions	SOA: Modeling the dynamics in Dyadic Interactions						
10:20	10:45	Break									
10:45	12:10					Inv. Symp.: Cognitively Diagnostic Assessment: Methods and Practices	Estimation I	Diagnostic Modeling I	FIT I	IRT I	
12:10	1:40	Lunch									
1:40	3:00					Inv. Symp.: Quality Control in Assessments	Factor Analysis I	Application I	<i>omnium gatherum</i>	Longitudinal	
3:00	3:25	Break									
3:25	4:05			Inv. Talk: Testing for Approximate Fit in Categorical Data Analysis (with applications to IRT)	Inv. Talk: The Importance of Modeling Measurement Errors in Longitudinal Data Analysis						
4:15	5:40					Inv. Symp.: Structured High- dimensional IRT Models for Educational Surveys	CAT	Statistics and Data Analysis I	Equating I	Multilevel	
5:45	6:00		Lifetime Achievement and Travel Awards								
6:00	7:00										Reception and Poster Session I

Wednesday, 7/11/2012

Begin	End		Ballroom	Lancaster I, II, III	Lancaster IV, V, VI	Olive Branch	Arbor I	Arbor II	Yankee Hill III	Yankee Hill I, II	Ivanhoe	Atrium
8:30	9:10			Inv. Talk: Stealth Assessment in Games	Inv. Talk: Correspondence Analysis of Multilevel Networks							
9:20	10:20		Keynote Address: An Overview on Measurement Uncertainty									
10:20	10:45	Break										
10:45	12:10					Inv. Symp.: Metaphors & Measurement: An Invited Symposium on Validity	Estimation II	Diagnostic Modeling II	FIT II	IRT II		
12:10	1:40	Lunch									Student Luncheon	
1:40	3:00					Inv. Symp.: Multilevel Modeling Applications	Factor Analysis II	Applications II	Assessment	Bayesian		
3:10	3:40			SoA: From Modeling Long-Term Growth to Short-Term Fluctuations: Differential Equations are the Language of Change	SoA: Item Response Theory Methodology Extensions Motivated by Applications to Psychiatric Disorder Criteria							
3:40	4:00	Break										
4:00	5:20				Equating II	Inv. Symp.: Nonparametric IRT	Cross Cultural	Statistics and Data Analysis II	SEM	Test Design		
5:30	6:30											Poster Session II

Thursday, 7/12/2012

Begin	End		Ballroom	Lancaster I, II, III	Lancaster IV, V, VI	Olive Branch	Arbor I	Arbor II	Yankee Hill III	Yankee Hill I, II
8:30	9:10		Dissertation Award Talk							
9:20	10:40					Inv. Symp.: New Developments in Psychometrics with R	Estimation III		Approaches I	IRT III
10:40	11:00	Break								
11:00	11:30			SoA: The Challenges of Functional Magnetic Resonance Imaging Data	SoA: The Theory and Practice of Validation					
11:40	12:20			Inv. Talk: The Random-Effect Strategy in the IRT Framework						
12:20	1:50	Lunch								
1:50	3:10					FIT III	Estimation IV	Applications III	Analysis III	Approaches II
3:10	3:30	Break								
3:30	4:30		Presidential Address							
4:30	4:50		Closing Ceremony							
5:00	5:40				Business Meeting					
6:00	8:00		Banquet; Best Junior Presenter & Best Poster Awards							

Workshop Registration Includes (July 9, 2012)

- Admission to the registered workshop.

Note: Lunch and coffee/tea break are not included in registration.

Main Conference Registration Includes (July 10-12, 2012)

- Admission to all events during the conference
- Participant bag (includes program)
- Snacks and coffee/tea at the Coffee/Tea breaks
- Conference banquet on July 12th (alcoholic drink is not included)

Note:

Meals are not included in registration.

Meals are not included in lodging for individuals staying at the Cornhusker Hotel.

Individuals staying on-campus do receive breakfast, lunch, and dinner meals July 9th - 11th, and on July 12th receive breakfast and lunch as part of their lodging; linens included, no meals on July 8th.

Social is on Wednesday, 7/11/12, from 7:00-9:00 and is held at the Sheldon Art Museum and Sculpture Garden Excursion. Member, Non-Member & Student cost for the Sheldon Excursion event is \$40.00 per ticket.

Ticket order closes July 2nd, 2012 and includes transportation, BBQ meal, and musical entertainment

General Information

Time Limit of Each Presentation: Presenters will have approximately 15 minutes to make his or her presentation. A laptop with projection will be available.

For symposia including discussants, the organizer is responsible for the time limit of each presentation.

For poster sessions poster boards will accommodate a 3-foot by 4-foot (i.e., .9 meters by 1.22 meters) poster. Each poster within a poster session has a number assigned to it. Each poster board side also has a number assigned. Presenters should attach their poster to the side of the poster board whose number corresponds to his or her poster's number. Push pins will be provided.

In an emergency situation, you should call 911 for police, ambulance service, and the fire department.

The closest hospital is BryanLGH Medical Center West (<http://www.bryanlgh.com>), 2300 South 16th Street, Lincoln, (402) 481-5942. It is approximately 2 miles from the Cornhusker Hotel or about a 5-6 minute drive.

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Pre-conference Workshops, July 9, 2012

1. Psychometrics with R

Monday 7/9/12, 9:00 am - 4:30 pm, Arbor I

Florian Wickelmaier, Eberhard Karls Universität Tübingen, Germany, &
Hannah Frick, Universität Innsbruck, Austria

Format:

Full-day workshop with four sessions of 1.5–2 hours each. The two morning sessions will give an overview of R (1) in general and (2) for psychometrics in particular. The afternoon sessions are practical tutorials focusing on specific topics: (3) IRT, and (4) SEM/CFA.

Content:

- (1) Introduction to R: First steps in R (installation/help/data), exploratory data analysis, linear modeling.
- (2) Overview of Psychometrics with R: A tour of psychometrics packages in R, highlights from task view, small examples/demos.
- (3) Item Response Modeling: Very brief review of theory, functionality of packages eRm and ltm, full case study, practical session.
- (4) Structural Equation Modeling and Confirmatory Factor Analysis: Very brief review of theory, functionality of package lavaan, full case study, practical session.

2. Analyzing Large Scale Assessment Data with the General Diagnostic Model

Monday 7/9/12, 9:00 am - 4:30 pm, Arbor II

Matthias von Davier, ETS, &
Claus H. Carstensen, Otto-Friedrich-Universität, Bamberg, Germany

Full-day focused on data collected in national and international educational surveys that are hierarchically organized. Students are sampled from within schools, and schools are sampled within states or countries. Several methods of accounting for this multilevel structure have been developed for a variety of psychometric models. Examples are multilevel IRT (e.g. Fox and Glas, 2003) or hierarchical extensions of latent class analysis (Vermunt, 2003). For diagnostic classification approaches, the general diagnostic model (von Davier & Yamamoto, 2004) has been extended to a hierarchical general diagnostic model (HGDM, von Davier, 2007) based on an extension of diagnostic models to a discrete mixture model (MGDM, von Davier, 2007). In this workshop, the HGDM and a selection of recent applications to large scale assessment data will be presented. The workshop will include hands-on exercises showing how to perform scale linking, growth modeling, and analyses of differential performance on items among observed and unobserved subpopulations. Participants will receive a copy of a software program for use with the exercises. This program can be obtained free of charge for research purposes and non-commercial use.

3. Models of measurement: from an engineering point of view

Monday 7/9/12, 9:00 am -12:00 pm, Olive Branch

Luca Mari, Università Cattaneo, LIUC, Castellanza (VA), Italy

As an information acquisition and representation experiment, measurement is today acknowledged to be more than a purely empirical process, as instead traditionally assumed. Its experimental outcome, i.e. the transducer output in the case of physical instruments, has to be interpreted as a property value, thus making the adoption of models, of both the measure and the measuring system, unavoidable although sometimes implicit.

With a systematic reference to two current background documents -- the "International vocabulary of metrology--Basic and general concepts and associated terms" (VIM, JGCM 200:2008), and the "Evaluation of measurement data --Guide to the expression of uncertainty in measurement" (GUM, JGCM 100:2008) --the workshop will propose a state of the art overview on the role of models of and in measurement, as considered from an engineering point of view. The presentation, whose formal side is just elementary function theory, will cover topics such as standard and instrument calibration, metrological traceability, measuring system characterization in terms of precision and accuracy, measurement uncertainty.

The workshop will pave the way to a discussion on the possible analogies and synergies between the "hard" and the "soft" side of measurement.

Main Conference, Tuesday, July 10, 2012

Conference Opening Ceremony and Group Photo

Tuesday, 7/10/2012, 8:00-8:55, Ballroom

All participants are warmly invited to attend the Conference Opening Ceremony

- Welcoming remarks

- Group Photo

Keynote Address: Modeling Mediation: Causes, Markers, and Mechanisms
Tuesday, 7/10/2012, 9:00-9:50, Ballroom

Presenter: Stephen Raudenbush, University of Chicago, USA

Social scientists have long been interested in mechanisms. Do social disparities at birth predict social disparities in adulthood because of unequal access to education? Does teacher training improve learning by improving teaching practice? Does cognitive skill mediate the relationship between education and earnings? For decades, social scientists labeled these as questions about mediation and sought answers by estimating a common set of simultaneous linear equations. In this talk, I will show that the three questions defined above are fundamentally different. In one case, demographic markers are linked to outcomes because of inequality of access and response to interventions. In the second case, an intervention improves outcomes by increasing the probability that persons will gain access to later, favorable interventions. In a third case, an intervention changes a proximal outcome that predicts a more distal outcome. Causation is in the air in each case, but the causal models are fundamentally different, leading to fundamentally different analytic approaches.

Chair: Mark Wilson

State of the Art: Multiple Imputation: State of the art and future directions
Tuesday, 7/10/2012, 9:55-10:20, Lancaster I, II, III

Presenter: Jennifer Hill, New York University, USA

Multiple Imputation was developed over twenty years ago but has only recently started to become common practice as a strategy for addressing missing data issues. I will describe the intuition behind multiple imputation, review the most popular approaches, and illustrate with an example using IRT data. I'll conclude with a discussion of more recent developments and future directions.

Chair: Kurt Geisinger, University of Nebraska–Lincoln, USA

State of the Art: Modeling the dynamics in Dyadic Interactions
Tuesday, 7/10/2012, 9:55-10:20, Lancaster IV, V, VI

Presenter: Emilio Ferrer, University of California - Davis, USA

Two important goals in the study of dyadic interactions are: (a) the identification of patterns representative of the dynamics between the two dyadic units, and (b) the use of such patterns to make predictions about the (future) state of the dyadic system. In this talk, I describe statistical and exploratory methods aimed at achieving these goals in relation to affect data from individuals in couples. Advantages and limitations of both methods are described together with their utility to characterize affective processes in couples over time and prediction of relationship quality and stability of the couples one year later.

Chair: Natalie Koziol, University of Nebraska–Lincoln, USA

Invited Symposium: Cognitively Diagnostic Assessment: Methods and Practices
Tuesday, 7/10/2012, 10:45-12:10, Olive Branch

Organizer: Bor-Chen Kuo, Graduate Institute of Educational Measurement and Statistics, National Taichung University of Education, Taichung, Taiwan

Presenters (Marked with asterisk):

The Validity of Q-matrix Design for DINA model: A practical perspective

Bor-Chen Kuo*, Graduate Institute of Educational Measurement and Statistics, National Taichung University of Education, Taichung, Taiwan

Huey-Min Wu, Graduate Institute of Educational Measurement and Statistics, National Taichung University of Education, Taichung, Taiwan

Shu-Chuan Shih Kuo, Graduate Institute of Educational Measurement and Statistics, National Taichung University of Education, Taichung, Taiwan

Using DINA model and Automated Scoring of Complex Tasks in Computer-Based Testing

Huey-Min Wu*, National Academy for Educational Research, Taiwan

Bor-Chen Kuo, National Academy for Educational Research, Taiwan

Chih-Wei Yang, National Academy for Educational Research, Taiwan

Application of Higher-order DINA Model to Game-based Number Sense Assessment

Shu-Chuan Shih*, National Taichung University of Education, Taiwan

Shu-Chuan Lee, National Taichung University of Education, Taiwan

Chih-Wei Yang, National Taichung University of Education, Taiwan

Cognitive Diagnostic Indices with Pattern and Attribute Level Adjustment

Hsiao-Shan Pai*, National Taichung University of Education, Taichung, Taiwan

Bor-Chen Kuo, National Taichung University of Education, Taichung, Taiwan

Chun-Hua Chen, National Taichung University of Education, Taichung, Taiwan

Chair: Bor-Chen Kuo

Parallel Session: Estimation I

Tuesday, 7/10/2012, 10:45-12:10, Arbor I

Presenters (Marked with asterisk):

Comparison of Bifactor Model by WinBUGS, BMIRT, Mplus, and LISREL for Graded Response Data

Chunmei Zheng*, University of Kansas, USA

Zairul Nor Deana Md Desa, University of Kansas, USA

Amy Gaumer Erickson, University of Kansas, USA

William P Skorupski, University of Kansas, USA

Estimation of a Ramsay-Curve IRT Model Using the Metropolis-Hastings Robbins-Monro Algorithm

Scott Monroe*, University of California - Los Angeles, USA

Li Cai, University of California - Los Angeles, USA

Estimating Latent Distributions with Loglinear Smoothing Models

Jodi M. Casabianca*, Carnegie Mellon University & RAND, USA

Brian Junker, Carnegie Mellon University, USA

Modeling Missing Responses in Competence Tests

Steffi Pohl*, Otto-Friedrich-University Bamberg, National Educational Panel Study, Germany

Linda Graefe, Friedrich-Schiller-University Jena, Germany

Moderator: Grant Orley

Parallel Session: Diagnostic Modeling I
Tuesday, 7/10/2012, 10:45-12:10, Arbor II

Presenters (Marked with asterisk):

Strength Profiles in Large-Scale Assessment: Comparison of the Accuracy and Consistency using the Rasch and the DINA Diagnostic Classification Models

Dong Gi Seo*, Michigan Department of Education, USA
Adisack Nhouyvanisvong, Naiku, USA

Consistency of Nonparametric Classification in Cognitive Diagnosis

Shiyu Wang*, University of Illinois at Urbana - Champaign, USA
Jeff Douglas, University of Illinois at Urbana - Champaign, USA

Detection of Differential Item Functioning in DINA Model

Li Xiao-Min*, Hong Kong Institute of Education, China
Wang Wen-Chung, Hong Kong Institute of Education, China

A Cognitive Diagnosis Model Based On a Particular Polytomous Case

Zhang Shumei*, Beijing Normal University, China
Bao Yu, Beijing Normal University, China

Effects of Q-matrix Misspecification for Cognitive Diagnosis Models

Li Xiao-Min*, Hong Kong Institute of Education, China
Wang Wen-Chung, Hong Kong Institute of Education, China

Moderator: Ayo Akinleye

Parallel Session: FIT I

Tuesday, 7/10/2012, 10:45-12:10, Yankee Hill III

Presenters (Marked with asterisk):

Evaluation of the Langer Improved Wald Test for DIF Testing

Carol Woods*, University of Kansas, USA

Li Cai, University of California - Los Angeles, USA

Mian Wang, University of Kansas, USA

Summed Score Based Fit Indices for Testing Latent Variable Distribution Assumption in IRT

Zhen Li*, University of California - Los Angeles, USA

Li Cai, University of California - Los Angeles, USA

The Use of Quadratic Form Statistics of Residuals to Identify IRT Model Misfit in Marginal Subtables

Yang Liu*, The University of North Carolina at Chapel Hill, USA

Alberto Maydeu-Olivares, University of Barcelona, Spain

Does Model Misspecification Lead to Spurious Latent Classes in the Population?

Ying-Fang Chen*, University of Maryland-College Park, USA

Hong Jiao, University of Maryland-College Park, USA

Dimensionality Check Using Several Programs

Sedat Sen*, The University of Georgia, USA

Allan S Cohen, The University of Georgia, USA

Seock-Ho Kim, The University of Georgia, USA

Moderator: Kevin Dahlman

Parallel Session: IRT I

Tuesday, 7/10/2012, 10:45-12:10, Yankee Hill I, II

Presenters (Marked with asterisk):

Archimedean Item Response Models

Johan Braeken*, Tilburg University, Netherlands

Maximum Marginal Likelihood Item Bifactor Analysis with Estimation of the General Dimension as an Empirical Histogram

Li Cai*, University of California - Los Angeles, USA

Carol Woods, University of Kansas, USA

Measuring Response Styles and Response Processes in Rating-Scales: Comparing Multidimensional Simple Structure IRT Models with Bifactor and Higher Order Factor Models

Lale Khorramdel, University of Vienna, Austria

Matthias von Davier*, Educational Testing Service (ETS), USA

Statistical Properties for the Leave-the-Harder-till-Later Speeded Rasch Model

Yu-Wei Chang*, National Tsing-Hua University, Taiwan

Rung-Ching Tsai, National Taiwan Normal University, Taiwan

Nan-Jung Hsu, National Tsing-Hua University, Taiwan

A Positive Trait Item Response Model

Joseph F. Lucke*, State University of New York at Buffalo, USA

Moderator: Michael Zweifel

Invited Symposium: Quality Control in Assessments
Tuesday, 7/10/2012, 1:40-3:00, Olive Branch

Organizer: Yi-Hsuan Lee, Educational Testing Service, USA

Presenters (Marked with asterisk):

A State Space Approach to Modeling IRT and Population Parameters From a Long Chain of Test Administrations

Richard Wanjohi*, University of Arkansas, USA
Peter van Rijn, Educational Testing Service, USA
Alina A. von Davier, Educational Testing Service, USA

Applying Harmonic Regression to Examine Stability of Mean Scale Scores

Yi-Hsuan Lee*, Educational Testing Service, USA
Shelby J. Haberman, Educational Testing Service, USA

Detection of Unusual Administrations Using a Linear Mixed Effects Model

Minzhao Liu*, University of Florida, USA
Yi-Hsuan Lee, Educational Testing Service, USA
Alina A. von Davier, Educational Testing Service, USA

Achieving a Stable Scale for an Assessment With Multiple Forms—Weighting Test Samples in IRT Linking and Equating

Jiahe Qian*, Educational Testing Service, USA
Alina A. von Davier, Educational Testing Service, USA
Yanming Jiang, Educational Testing Service, USA

Maintaining Test Integrity and Quality Control for Multi-Stage Tests

Alina A. von Davier* Educational Testing Service, USA
Yi-Hsuan Lee, Educational Testing Service, USA
Charles Lewis, Educational Testing Service, USA

Chair: Yi-Hsuan Lee

Parallel Session: Factor Analysis I
Tuesday, 7/10/2012, 1:40-3:00, Arbor I

Presenters (Marked with asterisk):

Pairwise Likelihood Estimation for Factor Analysis Models with Ordinal Data

Myrsini Katsikatsou*, Uppsala University, Sweden

Irini Moustaki, London School of Economics, UK

Fan Yang-Wallentin, Uppsala University, Sweden

Karl G. Jöreskog, Uppsala University, Sweden & Norwegian School of Management, Norway

Tests for Measurement Invariance when Subgroups are Unknown

Edgar C. Merkle*, University of Missouri, USA

Achim Zeileis, Universität Innsbruck, Austria

A Rotation Technique in Functional Principal Component Analysis

Michio Yamamoto*, Osaka University, Japan

Moderator: Grant Orley

Parallel Session: Applications I
Tuesday, 7/10/2012, 1:40-3:00, Arbor II

Presenters (Marked with asterisk):

Test Reliability at the Individual Level: How Well are We Measuring Intraindividual Change?

Yueqin (Jean) Hu*, University of Virginia, USA
John R. Nesselroade, University of Virginia, USA
Monica K. Erbacher, University of Virginia, USA

The Implication of Model Selection for ADHD Structure and its Impact on the ADHD - Inhibitory Control Relationship

Tiffany Sheffield*, University of Nebraska – Lincoln, USA
Jennifer Nelson, University of Nebraska – Lincoln, USA
Megan Butcher, University of Nebraska – Lincoln, USA
Kimberly Espy, University of Oregon; University of Nebraska – Lincoln, USA

Factors Associated with Successful Aging: A Structural Equation Modeling Approach

Hao Luo*, Tsinghua University, China

An Estimation Method for the Effects of Household Inventory and of Brand Switching Separately on No-Purchase Behavior for Products

Kei Miyazaki*, Kansai University, Japan
Takahiro Hoshino, Nagoya University, Japan

Multidimensional Rasch Analysis of 21st Century Core Competencies for Higher Education Questionnaire with Multiple Subscales

Jingjing Yao*, Hong Kong Institute of Education, China
Magdalena Mo Ching Mok, Hong Kong Institute of Education, China

Moderator: Ayo Akinleye

Parallel Session: *omnium gatherum*
Tuesday, 7/10/2012, 1:40-3:00, Yankee Hill III

Presenters (Marked with asterisk):

Applications of IRT and Diffusion Models

Eric Loken*, The Pennsylvania State University, USA

Classification of Rankings within a Kemeny Distance Framework

Willem J. Heiser*, Leiden University, Netherlands

Antonio D'Ambrosio, University of Naples Federico II, Italy

Subscore Evaluation for a Test of Reading Skills

Carina McCormick*, University of Nebraska - Lincoln, USA

John Sabatini, ETS, USA

Kelly Bruce, ETS, USA

Sandip Sinharay, ETS, USA

Tenaha O'Reilly, ETS, USA

Units, Laws, Theory, and Metrology in Physics and Psychometrics

William P. Fisher, Jr.*, University of California - Berkeley, USA

A. Jackson Stenner, MetaMetrics, Inc., USA

Multidimensional Scaling as an Alternative Statistical Method to Analyze Love Attitudes Scale

Vicente Cassepp-Borges*, Universidade Federal da Grande Dourados, Brazil

Luiz Pasquali, Universidade de Brailia, Brazil

Moderator: Kevin Dahlman

Parallel Session: Longitudinal
Tuesday, 7/10/2012, 1:40-3:00, Yankee Hill I, II

Presenters (Marked with asterisk):

Local Solutions in Latent Growth Mixture Models for Longitudinal Data

Paul Dudgeon*, University of Melbourne, Australia

Generalizability Theory Estimates of Reliability of Change: How Useful in Assessing Measurement Error Bias in Longitudinal Studies?

Patrick E. Shrout*, NYU, USA

Sean P. Lane, NYU, USA

Fitting Nonlinear Latent Diffusion Process to Irregularly Spaced Longitudinal Data with Efficient MCMC Algorithm

Zhaohua Lu*, The University of North Carolina at Chapel Hill, USA

Sy-Miin Chow, The University of North Carolina at Chapel Hill, USA

Andrew Sherwood, Duke University, USA

Hongtu Zhu, The University of North Carolina at Chapel Hill, USA

Testing Measurement Invariance in Latent Transition Analysis

Ji Hoon Ryoo*, University of Nebraska - Lincoln, USA

Moderator: Michael Zweifel

Invited Talk: Testing for Approximate Fit in Categorical Data Analysis (with applications to IRT)
Tuesday, 7/10/2012, 3:25-4:05, Lancaster I, II, III

Presenter: Alberto Maydeu-Olivares, University of Barcelona, Spain

Given the large number of degrees of freedom involved in IRT applications, it is very unlikely that any model for a realistic application is not rejected by a test of exact fit. Following the footsteps of Browne and Cudeck (1993), we propose a family of Root Mean Squared Error of Approximation (RMSEA) statistics for multivariate multinomial data. Although the approach presented here is completely general, we focus on its application to IRT models. Asymptotic methods can be used to obtain confidence intervals for an RMSEA, and hence tests of close fit. We show that the asymptotic approximation works well in practice.

Chair: Hua-Hua Chang, University of Illinois at Urbana- Champaign, USA

Invited Talk: The Importance of Modeling Measurement Errors in Longitudinal Data Analysis
Tuesday, 7/10/2012, 3:25-4:05, Lancaster IV, V, VI

Presenter: John (Jack) McArdle, University of Southern California, USA

Three key psychometric issues in longitudinal data analysis will be discussed, including:

1. What are the current psychometric models of longitudinal data analysis? Models based on Quasi-Markov Simplexes (QMS), Latent Curve Models (LCM), and Latent Change Scores (LCS) are presented. The strengths and weaknesses of each model are described, with a common focus on measurement errors, and the LCS approach is advocated (McArdle, 2009).
2. Why should I try to remove measurement errors in my longitudinal data? This is most relevant because any analysis of changes is biased to the degree there is measurement error in the observations. Current measurement solutions range from using Longitudinal Item Response Theory (LIRT) models to using Longitudinal Structural Equation Models (LSEM), and Exact Differential Equations (EDE), and each of these are acceptable as long as the model assumptions are correct (McArdle et al, 2009).
3. What if I do not do a through job removing the measurement error? This is a practical necessity because it seems we are always stuck in this dire situation. Several cautions are presented, but the only solution advocated is the basic replication of longitudinal results (McArdle & Cattell, 1994 McArdle & Nesselroade, 2012).

The three issues will be illustrated by applications to both simulated and real data.

Chair: Jonathan Weeks, ETS, USA

Invited Symposium: *Structured High-dimensional IRT Models for Educational Surveys*
Tuesday, 7/10/2012, 4:15-5:40, Olive Branch

Organizer: Frank Rijmen, Educational Testing Service, USA

Presenters (Marked with asterisk):

A Generalization of the Multiple-Group Bifactor Model with an Application of Differential Item Functioning

Minjeong Jeon*, University of California - Berkeley, USA

Frank Rijmen, Educational Testing Service, USA

Sophia Rabe-Hesketh, University of California - Berkeley, USA

Stochastic Estimation for Discrete Higher Order Latent Structure Models

Matthias von Davier*, Educational Testing Service, USA

Frank Rijmen, Educational Testing Service, USA

Minjeong Jeon, University of California - Berkeley, USA

Sophia Rabe-Hesketh, University of California - Berkeley, USA

**Local Dependence and Dimensionality Considerations in Applying Multidimensional IRT Models to
Innovative Writing Assessment**

Peter W. van Rijn*, Educational Testing Service, USA

Paul Deane, Educational Testing Service, USA

Frank Rijmen, Educational Testing Service, USA

Randy E. Bennett, Educational Testing Service, USA

**A Third Order Item Response Theory Model for Modeling the Effects of Domains and Subdomains in Large-
Scale Educational Assessment Surveys**

Frank Rijmen*, Educational Testing Service, USA

Minjeong Jeon, University of California - Berkeley, USA

Matthias von Davier, Educational Testing Service, USA

Sophia Rabe-Hesketh, University of California - Berkeley, USA

Chair: Frank Rijmen

Parallel Session: CAT

Tuesday, 7/10/2012, 4:15-5:40, Arbor I

Presenters (Marked with asterisk):

On Initial Ability Guesses to Start an Adaptive Test

Lianghua Shu*, CTB/McGraw-Hill, USA

The Item-Weighted Likelihood Method for Mixed Item Type Computerized Adaptive Testing

Wen Zeng, University of Wisconsin at Milwaukee, USA

Chun Wang, University of Illinois at Urbana - Champaign, USA

Hua-Hua Chang*, University of Illinois at Urbana - Champaign, USA

Making Multistage Testing More Secure --- An Analysis Under the Item Theft Scenario

Yi Zheng*, University of Illinois at Urbana - Champaign, USA

Chun Wang, University of Illinois at Urbana - Champaign, USA

Hua-Hua Chang, University of Illinois at Urbana - Champaign, USA

Exploring the Mutual Information and Bayesian D-optimality Item Selection Methods in Multidimensional Adaptive Testing

Hyeon-Ah Kang*, University of Illinois - Urbana Champaign, USA

Hua-Hua Chang, University of Illinois - Urbana Champaign, USA

Improving the Clinical Interpretability of Computerized Adaptive Tests: Development of a Hybrid CAT

Betsy J. Feldman*, University of Washington, USA

Todd C. Edwards, University of Washington, USA

RJ Wirth, Vector Psychometric Group, LLC, USA

Laura E. Gibbons, University of Washington, USA

Christopher B. Forrest, Children's Hospital of Philadelphia, USA

Donald L. Patrick, University of Washington, USA

Heidi M. Crane, University of Washington, USA

Paul K. Crane, University of Washington, USA

Moderator: Grant Orley

Parallel Session: Statistics & Data Analysis I
Tuesday, 7/10/2012, 4:15-5:40, Arbor II

Presenters (Marked with asterisk):

Decompositions of Chi-square Statistics in Contingency Tables

Yoshio Takane, McGill University, Canada

Lixing Zhou*, McGill University, Canada

Multitrait Multirank Model: Formulation and Demonstration using LibQUAL+Æ

Prathiba Natesan*, University of North Texas, USA

Xing Qin, University of North Texas, USA

Neglect the Structure of Multitrait-Multimethod Data At Your Peril: Implications for Associations with External Variables

Laura Castro-Schilo*, University of California - Davis, USA

Keith F. Widaman, University of California - Davis, USA

Kevin J. Grimm, University of California - Davis, USA

Statistical Analysis of Single-Subject Data: A Bayesian Model

Rivka M. de Vries*, University of Groningen, Netherlands¹

Richard D. Morey, University of Groningen, Netherlands

Augmenting Fleishman's Power Method Using a Doubling Technique Based on Standard Normal and Logistic Distributions

Mohan Dev Pant*, Southern Illinois University - Carbondale, USA

Todd Christopher Headrick, Southern Illinois University - Carbondale, USA

Moderator: Ayo Akinleye

¹Psychometric Society Travel Award Winner

Parallel Session: Equating I
Tuesday, 7/10/2012, 4:15-5:40, Yankee Hill III

Presenters (Marked with asterisk):

The Sensitivity of Equating on Differences in Score Distributions

Minji K. Lee*, University of Massachusetts Amherst, USA
Hyunjoo Oh, Educational Testing Service, USA
Hongwen Guo, Educational Testing Service, USA

Equating Subscores Using Augmented Scores of Anchor Items

Jiwon Choi*, Yonsei University, South Korea
Guemin Lee, Yonsei University, South Korea

Test Score Equating Using Discrete Anchor Items versus Passage-based Anchor Items: A Comparison Study Using Operational Data

Jinghua Liu*, Educational Testing Service, USA
Jiyun Zu, Educational Testing Service, USA
Edward Curley, Educational Testing Service, USA
Jill Carey, Educational Testing Service, USA

Measurement of Growth and the Problem of Scale Shrinkage: A New IRT Perspective

Daniel M. Bolt*, University of Wisconsin - Madison, USA

Investigating Equating Anchor Item Stability Using Iterative Bootstrap and Jackknife Derived Standard Errors of Equated True Scores

Michael Chajewski*, The College Board, USA
Kevin Sweeney, The College Board, USA

Moderator: Kevin Dahlman

Parallel Session: Multilevel
Tuesday, 7/10/2012, 4:15-5:40, Yankee Hill I, II

Presenters (Marked with asterisk):

Estimation of Contextual Effects through Nonlinear Multilevel Latent Variable Modeling with a Metropolis-Hastings Robbins-Monro Algorithm

Jiseung Yang*, University of California - Los Angeles, USA
Li Cai, University of California - Los Angeles, USA

Using a Bayesian Method for Simultaneous Estimation of Student Ability and Teacher and School Effects in a Four-level Three-Parameter Item Response Theory Model

Yong Luo*, University of Maryland, College Park, USA
Hong Jiao, University of Maryland, College Park, USA
Anna Van Wie, University of Maryland, College Park, USA

A Procedural Framework To Detect School-Level Influences On Item Functioning Using A Two-Level Mimic Modeling Approach

Shonte Stephenson*, University of California - Berkeley, USA
Katherine Masyn, Harvard University, USA

Causal Inference for Multilevel Modeling Under Nonrandom Allocation of Level-2 Units

Takahiro Hoshino*, Nagoya University, Japan

Interaction of Level-1 Variables in Multilevel Structural Equation Models

Ehri Ryu*, Boston College, USA

Moderator: Michael Zweifel

Lifetime Achievement Award & Travel Awards
Tuesday, 7/10/2012, 5:45-6:00, Ballroom

Psychometric Society Travel Award Winners

Rivka M. de Vries, University of Groningen, Netherlands
Statistical Analysis of Single-Subject Data: A Bayesian Model

Hye Won Suk, McGill University, Canada
Kernel Generalized Structured Component Analysis

Zairul Nor Deana Md Desa, University of Kansas, USA /Universiti Teknologi Malaysia, Malaysia
Bi-factor compensatory and partially compensatory multidimensional item response theory for subscore estimation, reliability, and classification

ETS Travel Award Winner

Psychometric Society Lifetime Achievement Award Winner

Host: Mark Wilson, University of California - Berkeley, USA

Opening Reception

Tuesday, 7/10/2012, 6:00-7:00, Atrium

All participants are cordially invited to attend the opening reception. Snacks and beverages will be provided.

Poster Session I

Tuesday, 7/10/2012, 6:00-7:00, Atrium

Presenters (Marked with asterisk):

1. An Application of Diffusion Models for Two-choice Response Tasks in Implicit Association Tests

Lawrence Lo*, The Pennsylvania State University, USA

Eric Loken, The Pennsylvania State University, USA

2. Covariate Balance in a Two-Step Bayesian Propensity Score Approach for Observational Studies

Jianshen Chen*, University of Wisconsin - Madison, USA

David Kaplan, University of Wisconsin - Madison, USA

3. Investigating Population Heterogeneity in Preference Judgment With Paired Comparison Data

Rung-Ching Tsai*, National Taiwan Normal University, Taiwan

Sen-Ren Tsai, National Taiwan Normal University, Taiwan

4. A Nonparametric Ability Measure

Nan L. Kong*, Educational Testing Service, USA

5. Detecting Extreme Responders Using a Polytomous Mixture Rasch Model

Youngmi Cho*, University of Maryland, USA

6. Linking Typologies Derived from Latent Class Analysis to Outcome Variables: Comparison among Three Procedures

Yudan Chen Wang*, The University of North Carolina at Greensboro, USA

Richard A. Faldowski, The University of North Carolina at Greensboro, USA

7. Testing Lagged Intraindividual Mediation Models in a Multilevel Structural Equation Modeling Framework

Adela C. Timmons*, University of Southern California, USA

8. Comparing Attribute Distribution across Countries; Application to TIMSS 2007 Mathematics

Jung Yeon Park*, Columbia University, USA

Matthew Johnson, Columbia University, USA

Young-Sun Lee, Columbia University, USA

Jianzhou Zhang, Columbia University, USA

Ruchi Sachdeva, Columbia University, USA

9. A Research on Diagnosis of International Students' Attribute-mastery Patterns of Basic Chinese Color Terms

Liu Hui*, National Key Laboratory of Cognitive Neuroscience and Learning, China

Bian Yufang, National Key Laboratory of Cognitive Neuroscience and Learning, China

10. Diagnosing Knowledge States in Mathematical Ability Using Rule Space Model with Different Q-matrices

Yeongyu Lim*, Georgia Institute of Technology, USA

Susan Embretson, Georgia Institute of Technology, USA

11. The Validation of Q-matrix in a Large Scale Cognitive Diagnostic Assessment

Zhaosheng Luo*, Jiangxi Normal University, China

Hua-Hua Chang, University of Illinois at Urbana - Champaign, USA

Chun Wang, University of Illinois at Urbana - Champaign, USA

12. Effects of Inter-trait Correlation on Parameter Estimation in Multidimensional Item Response Theory (MIRT)

Kyungtae Kim*, Middle Tennessee State University, USA

Jwa K. Kim, Middle Tennessee State University, USA

13. A Bi-Factor Approach to Within-item Multidimensionality Analysis and Subscore Estimation

Wei Wang*, University of Illinois at Urbana - Champaign, USA

Fritz Drasgow, University of Illinois at Urbana - Champaign, USA

Liwen Liu, University of Illinois at Urbana - Champaign, USA

14. Using Mplus Software for IRT Modeling: A Guide for Practitioners

Katherine Rhodes*, Georgia State University, USA

Chris Oshima, Georgia State University, USA

15. Understanding the Student's Anxiety Effect over the Probability of a Correct Answer Using IRT Models

Tufi Machado Soares*, Federal University of Juiz de Fora, Brazil

Sarah Martins Salomão Brodbeck, Federal University of Juiz de Fora, Brazil

Neimar da Silva Fernandes, Federal University of Juiz de Fora, Brazil

16. Alternative Verbal Scores for English Language Learners: Examining the Validity Evidence for Score Reporting Modification in a Large Scale Ability Test

Ah Young Shin*, The University of Iowa, USA

17. A High Performance Gibbs Sampler for the 2PNO IRT Model

Mona Rahimi, Southern Illinois University - Carbondale, USA

Yanyan Sheng*, Southern Illinois University - Carbondale, USA

18. Sample Size and Item Parameter Recovery of Generalized Partial Credit Model

Ja Young Kim*, The University of Iowa, USA

19. A Fully Bayesian MCMC Solution to Torgerson's Least Constrained Model for the Law of Categorical Judgment

David R. King*, Georgia Institute of Technology, USA

Zane Blanton, The University of North Carolina, USA

James S. Roberts, Georgia Institute of Technology, USA

20. An Investigation of the Performance of 'Minitest' vs. 'Miditest' for Anchor Test on Kernel and Traditional Equating Methods

Seohong Pak*, The University of Iowa, USA

Guemin Lee, Yonsei University, South Korea

21. A Study of the Effect of Representativeness of Anchor Items on Report Scores in Computerized Adaptive Testing

Chiou-Yueh Shyu*, The National University of Tainan, Taiwan

22. The Impact of Synthetic Population Weights on the Accuracy of Different Equating Methods

Hyung Jin Kim*, The University of Iowa, USA

23. Examining Grade-to-Grade Variability in the Context of IRT Vertical Scaling

Anna Topczewski*, The University of Iowa

24. The Study of the Accuracy and Consistency of a Series of IRT Observed Score Equatings Using Various Scale Transformation Methods by BIB Design

Chien-Ming Cheng*, National Academy for Educational Research, Taiwan

Teng-Ming Wang, National Taichung University, Taiwan

25. The Validity of Automatic Rating System for Assessing the Creativity Process

Po-Hsi Chen*, National Taiwan Normal University, Taiwan

Pei-Yu Lee, National Taiwan Normal University, Taiwan

Chun-Yu Hsu, National Taiwan Normal University, Taiwan

Su-Ping Hung, National Taiwan Normal University, Taiwan

27. Applying Object-Oriented Design on the Development of an e-Testing System

FengShuo Yu*, Kun Shan University, Taiwan

28. Setting a Target Test Information Function for Assembly of IRT-Based

Kentaro Kato*, Center for Research on Educational Testing, Japan

29. A Comparative Study of Test Overlap Control Methods in Computerized Adaptive Testing

Shu-Ying Chen*, National Chung-Cheng University, Taiwan

Hsiu-Yi Chao, National Chung-Cheng University, Taiwan

Main Conference, Wednesday, July 11, 2012

Invited Talk: Stealth Assessment in Games

Wednesday, 7/11/2012, 8:30-9:10, Lancaster I, II, III

Presenter: Valerie Shute, Florida State University, USA

My presentation will describe stealth assessment in games, which refers to performance-based assessments embedded within games to unobtrusively, accurately, and dynamically measure how players are progressing relative to targeted competencies (Shute, 2011; Shute, Ventura, Bauer, & Zapata-Rivera, 2009). That is, during gameplay, students produce rich sequences of actions while performing complex tasks, drawing on a variety of competencies. Evidence needed to assess the competencies is thus provided by the players' interactions with the game itself (i.e., the processes of play). I'll focus on the design, development, and evaluation of three stealth assessments measuring creativity, conscientiousness, and conceptual physics. I plan to illustrate the approach in a game called Crayon Physics Deluxe (CPD) – a computer-based game that emphasizes two-dimensional physics simulations, including gravity, mass, kinetic energy, and transfer of momentum. Data are collected in CPD from players' interactions in the game to inform our three focal competencies. A key feature of stealth assessments is evidence-centered assessment design (ECD), which requires a systematic analysis of the assessment argument, including the claims to be made about the learner(s) and the evidence that supports those claims (Mislevy, Steinberg, & Almond, 2003).

Chair: Jamie Marincic, Mathematica Policy Research, USA

Invited Talk: *Correspondence Analysis of Multilevel Networks*
Wednesday, 7/11/2012, 8:30-9:10, Lancaster IV, V, VI

Presenter: Stanley Wasserman, Indiana University, USA

Social actors are often nested within *a priori* subgroups, thus giving rise to affiliation data. Such data can be viewed as multilevel, and can be complex if the actor-nesting is not mutually exclusive. The actors are the lower level; the subgroups are the upper; actors can be in more than one subgroup.

For example, consider individuals nested within teams. Work teams are essential in solving complex and difficult tasks. Modern technologies enable individuals to self-organize and participate in more than one team. Teams often share one or more members with other teams and hence, are not independent from each other. The dependencies among overlapping teams violate the basic assumption of statistical independence common to many traditional statistical methods. Linear models are simply not appropriate if the teams are defined as individual cases. A straightforward remedy is to model teams and the individuals nested within them using network methodology. Nodes represent individuals and relational ties among individuals indicate joint participation in one or more teams. This quantification captures the overlapping team membership but unfortunately fails to preserve the team structures. So, we consider a newer approach – use affiliation networks to represent teams and individuals, with “links” representing team membership. We then use correspondence analysis, which enables us to incorporate attributes at both individual levels and team levels. There are no independence assumptions that one needs to worry about. We present the theory for this approach, and then illustrate with an example focusing on combat teams from a fantasy-based online game, *EverQuest II*. We look at relations among various individual level and team level attributes on team performance.

Chair: James Bovaird, University of Nebraska – Lincoln, USA

Keynote Address: An Overview on Measurement Uncertainty
Wednesday, 7/11/2012, 9:20-10:20, Ballroom

Presenter: Luca Mari, Università Cattaneo, Italy

The concept of measurement uncertainty offers some interesting new connotations with respect to the traditional way the quality of measurement results has been represented, from ontology (true value and error), to epistemology (degree of belief), to pragmatics (target measurement uncertainty), and for the progressive emphasis from analytical to numerical methods of propagation. The talk presents a conceptual framework in which measurement uncertainty is interpreted as an overall property, synthesizing both instrumental and definitional contributions.

Chair: Mark Wilson

Invited Symposium: Metaphors and Measurement: An Invited Symposium on Validity
Wednesday, 7/11/2012, 10:45-12:10, Olive Branch

Organizer: Andrew Maul, University of Oslo, Norway

Presenters (Marked with asterisk):

Are we measuring or just “measuring”? On the role of metaphor in human science measurement

Andrew Maul*, University of Oslo, Norway

Metaphor as measurement and vice versa

William Fisher*, University of California - Berkeley, USA

The syntax and semantics of measurements

Michael Kane*, Educational Testing Service, USA

Validity as a two-sided problem

Klaas Sijtsma*, Tilburg University, Netherlands

Chair: Andrew Maul

Parallel Session: Estimation II
Wednesday, 7/11/2012, 10:45-12:10, Arbor I

Presenters (Marked with asterisk):

The Effect of Varying Degrees of Nonnormality in Associative Latent Trajectory Models

Chueh-An Hsieh*, National Sun Yat-sen University, Taiwan

Evaluation of Bandwidth Selection Methods Using Kernel Density Estimation

Jared K. Harpole*, University of Kansas, USA

Carol M. Woods, University of Kansas, USA

Deriving the Reliability Measures for Multistage Testing

Gongjun Xu*, Columbia University, USA

Chun Wang, University of Illinois at Urbana - Champaign, USA

Hua-Hua Chang, University of Illinois at Urbana - Champaign, USA

Zhiliang Ying, Columbia University, USA

Logistic function of a Monotonic Polynomial using MML-EM

Jennifer Wright*, University of California - Los Angeles, USA

Li Cai, University of California - Los Angeles, USA

Approximate Likelihood Inference in Generalized Linear Latent Variable Models

Silvia Bianconcini*, University of Bologna, Italy

Silvia Cagnone, University of Bologna, Italy

Dimitris Rizopoulos, Erasmus University Rotterdam, Netherlands

Moderator: Grant Orley

Parallel Session: Diagnostic Modeling II
Wednesday, 7/11/2012, 10:45-12:10, Arbor II

Presenters (Marked with asterisk):

A Randomization and Classification Approach to Construct Parallel Test Forms Based on DINA Model

Pei-Hua Chen*, National Chiao Tung University, Taiwan
Wenhao Gui, University of Minnesota at Duluth, USA
Haiyan Wu, Florida State University, USA

The Comparison of the General Diagnostic Model (GDM) and Bayesian Networks Using a Middle School Mathematics Test

Haiyan Wu*, Florida State University, USA

Aggregate Ranked Information Method (ARI) for CD-CAT in a Large Scale Assessment

Chanjin Zheng*, University of Illinois at Urbana - Champaign, USA
Chun Wang, University of Illinois at Urbana - Champaign, USA
Hua-Hua Chang, University of Illinois at Urbana - Champaign, USA

Complexity Index in Cognitive Diagnosis Models

Koken Ozaki*, The Institute of Statistical Mathematics, Japan

Heuristic Cognitive Diagnosis When the Q-Matrix is Unknown

Hans-Friedrich Koehn*, University of Illinois at Urbana - Champaign, USA
Chia-Yi Chiu, Rutgers University, USA
Michael J. Brusco, Florida State University, Tallahassee, USA

Moderator: Ayo Akinleye

Parallel Session: FIT II

Wednesday, 7/11/2012, 10:45-12:10, Yankee Hill III

Presenters (Marked with asterisk):

The Effect of Response Model Misspecification and Uncertainty on the Psychometric Properties of Estimates

Kristian E. Markon*, The University of Iowa, USA

When Local Independence Diagnostics Mislead

Mark Hansen*, University of California - Los Angeles, USA

Li Cai, University of California - Los Angeles, USA

A Note On a Tucker-Lewis Index For Item Response Theory Modeling

Taehun Lee*, University of California - Los Angeles, USA

Li Cai, University of California - Los Angeles, USA

Visualizing Results from Nonparametric IRT

Andries van der Ark*, Tilburg University, Netherlands

Moderator: Kevin Dahlman

Parallel Session: IRT II

Wednesday, 7/11/2012, 10:45-12:10, Yankee Hill I, II

Presenters (Marked with asterisk):

Conditions for the Joint Consistency of a Multidimensional Ramsay, Ås model

Mario Luzardo*, *Universidad de la República, Uruguay*

Diego Forteza, *Universidad de la República, Uruguay*

Dario Padula, *Universidad de la República, Uruguay*

Nelson Chavez, *Universidad de la República, Uruguay*

Insulated Nominal Categories Models for Multiple-Choice Response Data

Jinsong Chen*, *Rutgers University, USA*

Jimmy de la Torre, *Rutgers University, USA*

On the Relation Between the Explaining Away Phenomenon and Paradoxical Results in Multidimensional Item Response Theory

Peter van Rijn*, *Educational Testing Service, USA*

Frank Rijmen, *Educational Testing Service, USA*

Building up Adjusted Indicators of Students' Evaluation of University Courses Using Generalized Item Response Models

Isabella Sulis*, *Università di Cagliari, Italy*

Vincenza Capursi, *Università di Palermo, Italy*

An Empirical Study of the Three-Parameter Multi-Unidimensional Model

Yanyan Sheng*, *Southern Illinois University - Carbondale, USA*

Mohan Pant, *Southern Illinois University - Carbondale, USA*

Moderator: Weldon Smith

Invited Symposium: Multilevel Modeling Applications
Wednesday, 7/11/2012, 1:40-3:00, Olive Branch

Organizer: RJ De Ayala, University of Nebraska – Lincoln, USA

Presenters (Marked with asterisk):

Multilevel IRT Models for Mixed-format Tests with Multiple Content Areas

Mathew Grady*, University of Nebraska – Lincoln, USA

Incorporating latent variable outcomes in value-added assessment: An evaluation of univariate and multivariate measurement model structures

Leslie Shaw*, University of Nebraska – Lincoln, USA

Evaluating Contextual Effects in Multilevel SEM: The Effects of Non-invariant Measurement at the Macro and Micro Levels with Small Sample Sizes

Houston Lester*, University of Nebraska – Lincoln, USA

Chaorong Wu, University of Nebraska – Lincoln, USA

James A. Bovaird, University of Nebraska – Lincoln, USA

A Four-Level Item Response Theory Model for Simultaneous Estimation of Student, Teacher, and School Effects

Anna Van Wie*, University of Maryland, College Park, USA

Yong Luo, University of Maryland, College Park, USA

Hong Jiao, University of Maryland, College Park, USA

Chair: RJ De Ayala

Parallel Session: Factor Analysis II
Wednesday, 7/11/2012, 1:40-3:00, Arbor I

Presenters (Marked with asterisk):

Semimetric Principal Components Analysis for Ordered Ternary Variables

Takashi Murakami*, Chukyo University, Japan

Choosing an Invariant Reference Indicator when Testing Invariance in Multiple Group Factor Analysis

Xiaoling Zhong*, The Hong Kong Institute of Education, China

Wen-Chung Wang, The Hong Kong Institute of Education, China

Computing Bartlett's Factor Scores with Exogenous Observed Predictors

Yiu-Fai Yung*, SAS Institute Inc., USA

Ke-Hai Yuan, University of Notre Dame, USA

Standard Errors for Parameter Estimates of Dynamic Factor Analysis with Non-Normal Data

Zijun Ke*, University of Notre Dame, USA

Guangjian Zhang, University of Notre Dame, USA

Ordering of the Factor Score by the Sum of the Observed Measures: When is it Monotonic?

Roger E. Millsap*, Arizona State University, USA

Moderator: Grant Orley

Parallel Session: Applications II
Wednesday, 7/11/2012, 1:40-3:00, Arbor II

Presenters (Marked with asterisk):

Correlates to Non-response Behaviors on a Web-Based Assessment

Sangeeta Agrawal, Gallup, USA
Jim Asplund, Gallup, USA
Presented by Yongwei Yang

Development of Learning Adaptability Scales For Pupils

Xiaoling Fan*, Hunan Normal University, China
Cuiping Yang, Hunan Normal University, China
Jiashu Xie, Hunan Normal University, China
Zhiming Yang, Hunan Normal University, China

General Growth Mixture Analysis of Adolescents' Developmental Trajectories of Internet Addiction Disorder: Patterns, Antecedents, and Consequence

Wenjing Guo, Beijing Normal University, China
Yufang Bian*, Beijing Normal University, China
Wenchao Ma, Beijing Normal University, China

Simulation of LibQUAL+ \mathcal{E} Lite from LibQUAL+ \mathcal{E} : An Analysis of Confidence Intervals, Root Mean-Square Deviations and Bias

Hector Ponce*, University of North Texas, USA
Prathriba Natesan, University of North Texas, USA

Bi-factor Compensatory and Partially Compensatory Multidimensional Item Response Theory for Subscores Estimation, Reliability and Validity

Zairul Nor Deana Md Desa*, University of Kansas, USA /Universiti Teknologi Malaysia, Malaysia¹
William P. Skorupski, University of Kansas, USA
Paul E. Johnson, University of Kansas, USA

Moderator: Ayo Akinleye

¹Psychometric Society Travel Award Winner

Parallel Session: Assessment

Wednesday, 7/11/2012, 1:40-3:00, Yankee Hill III

Presenters (Marked with asterisk):

A New Index to Measure TEST Security for Online Testing

Chun Wang*, University of Illinois at Urbana - Champaign, USA

Yi Zheng, University of Illinois at Urbana - Champaign, USA

Hua-Hua Chang, University of Illinois at Urbana - Champaign, USA

Examining Relationships Between Item Latency, Item Statistics, and Examinee's Demographic Characteristics for Compromised Items

Shu-chuan Kao*, Pearson, USA

Jerry Gorham, Pearson, USA

An Integrative Model to Combine Response Time with Response Accuracy

Hye-Jeong Choi*, University of Nebraska – Lincoln, USA

Caron A.C. Clark, University of Nebraska – Lincoln, USA

Are we Assessing Students Using the System Noise from our Data Matrices?

Jay Powell*, Better Schooling Systems, USA

Moderator: Kevin Dahlman

Parallel Session: Bayesian

Wednesday, 7/11/2012, 1:40-3:00, Yankee Hill I, II

Presenters (Marked with asterisk):

Psychological Time Series Analysis: ARIMA or Bayesian Dynamic Linear Modeling?

Tanja Krone*, University of Groningen, Netherlands

C.J. Albers, University of Groningen, Netherlands

M.E. Timmerman, University of Groningen, Netherlands

Bayesian Estimation of One-step Ordinal Structural Equation Models Using IRT Scores

Prathiba Natesan*, University of North Texas, USA

Estimation of Reliability: A Bayesian Model Averaging Approach

Kensuke Okada*, Senshu University, Japan

Applying Mixed-Multivariate Beta Distribution to Item Response Theory

Tomoya Okubo*, The National Center for University Entrance Examinations, Japan

Will be presented as part of **Poster Session II Wednesday, 7/11/2012, 5:30 - 6:30, Atrium**

Moderator: Weldon Smith

State of the Art: From Modeling Long-Term Growth to Short-Term Fluctuations: Differential Equations are the Language of Change

Wednesday, 7/11/2012, 3:10-3:40, Lancaster I, II, III

Presenter: Pascal Deboeck, University of Kansas, USA

Many applied statistical problems seek to address how the change in one variable is related to change in another variable. While the change of one variable with respect to another is the very definition of a derivative, the language of derivatives is often relegated to maximization and minimization problems rather than commonplace discussion of models and applied theories. This presentation will first discuss derivatives as a language framework that is ideal for describing changes in variables, particularly changes with respect to time. This language can be used to understand many common models as relationships between derivatives rather than as seemingly disparate entities. Derivatives can also be used to provide statisticians and applied researchers a common language that can be used to create better matches between models and theory. Second, this presentation will present derivatives as a language that has the potential to change the kinds of questions researchers ask from variables measured repeatedly over time. Examining commonly used models as relationships between derivatives highlights relationships that are rarely explored, particularly when modeling short-term fluctuations. Questions that can be asked through modeling of the relationships between derivatives and methods for implementing these models will be introduced.

Chair: Peter Halpin, University of Amsterdam, Netherlands

State of the Art: Item Response Theory Methodology Extensions Motivated by Applications to Psychiatric Disorder Criteria

Wednesday, 7/11/2012, 3:10-3:40, Lancaster IV, V, VI

Presenters: Melanie Wall & Jung Yeon Park, Columbia University, USA

The Diagnostic and Statistical Manual (DSM) of Mental Disorders includes criteria sets (lists of symptoms with durations specified), and rules on how to combine the criteria that are used to diagnose psychiatric disorders (e.g. alcohol abuse/dependence or generalized anxiety disorder). Latent variable modeling, including item response theory, multifactor confirmatory factor analysis, and factor mixture models have been widely used to assess the underlying structure of criteria sets including addressing questions of whether disorders fall along single or multiple continuous dimensions, or else are discrete typologies. Especially in community samples, responses to DSM criteria are highly skewed (floor effects with many people with no symptoms). This talk will explicate problems inherent in assessing unidimensionality of criteria sets caused by skewed underlying traits and propose solutions using mixture IRT models. In addition, IRT has been used to quantify the precision offered by fixed psychiatric criteria sets and used to compare planned changes to the criteria. A new method for quantifying the variability in the IRT total information curve will be presented which provides a means of formally testing whether a newly proposed criteria set offers improved precision over another.

Chair: Holmes Finch, Ball State University, USA

Invited Symposium: Nonparametric Item Response Theory
Wednesday, 7/11/2012, 4:00-5:20, Olive Branch

Organizers: L. Andries van der Ark, Tilburg University, Netherlands
Rob R. Meijer, University of Groningen, Netherlands

Presenters (Marked with asterisk):

Introduction to Nonparametric IRT

Klaas Sijtsma*, Tilburg University, Netherlands

Minimum Sample Size Requirements for Mokken Scale Analysis

J. Hendrik Straat*, Tilburg University, Netherlands

Standard Errors and Confidence Intervals for Scalability Coefficients in Mokken Scale Analysis Using Marginal Models

Renske E. Kuijpers*, Tilburg University, Netherlands

Investigating Invariant Item Ordering in Personality and Clinical Scales: Some Empirical Findings and a Discussion

Rob R. Meijer*, University of Groningen, Netherlands

Ordinal Assessment in Clinical and Medical Psychology

Wilco H. M. Emons*, Tilburg University, Netherlands

Chair: L. Andries van der Ark

Parallel Session: Cross Cultural
Wednesday, 7/11/2012, 4:00-5:20, Arbor I

Presenters (Marked with asterisk):

Design Considerations for the Programme for International Student Assessment

Jonathan Weeks*, Educational Testing Service, USA
Matthias von Davier, Educational Testing Service, USA
Kentaro Yamamoto, Educational Testing Service, USA

Linking PISA 2000 and PISA 2009: Implications of Instrument Design on Measurement Invariance

Eunike Wetzel*, Otto-Friedrich-University Bamberg, Germany
Claus H. Carstensen, Otto-Friedrich-University Bamberg, Germany

Statistical Matching of International Large Scale Assessments: A Case Study of the OECD PISA and TALIS Surveys

David Kaplan*, University of Wisconsin – Madison, USA
Alyn Turner, University of Wisconsin – Madison, USA

Sensitivity of Conclusions to Incorrect Assumptions About Cross-National Measurement Equivalence

Jouni Kuha*, London School of Economics and Political Science, UK
Irina Moustaki, London School of Economics and Political Science, UK
Sally Stares, London School of Economics and Political Science, UK

Moderator: Grant Orley

Parallel Session: Statistics & Data Analysis II
Wednesday, 7/11/2012, 4:00-5:20, Arbor II

Presenters (Marked with asterisk):

Measuring the Effectiveness of an Educational Intervention when Assignment is Related to Pre-Intervention Ability

Matthew S. Johnson*, Columbia University, USA
Jessica Marini, Columbia University, USA

MIMIC DIF Testing When the Latent Variable Variance Differs Between Groups

Ian Carroll*, University of Kansas, USA
Carol Woods, University of Kansas, USA

Kernel Generalized Structured Component Analysis

Hye Won Suk*, McGill University, Canada¹
Heungsun Hwang, McGill University, Canada

Hierarchically Structured Fuzzy c-Means Clustering

Hye Won Suk, McGill University, Canada
Ji Yeh Choi*, McGill University, Canada
Heungsun Hwang, McGill University, Canada

Moderator: Ayo Akinleye

¹Psychometric Society Travel Award Winner

Parallel Session: SEM

Wednesday, 7/11/2012, 4:00-5:20, Yankee Hill III

Presenters (Marked with asterisk):

Using a Monte Carlo Approach for Nested Model Comparisons in Structural Equation Modeling

Sunthud Pornprasertmanit*, University of Kansas, USA

Wei Wu, University of Kansas, USA

Todd D. Little, University of Kansas, USA

Structural Equation Modeling with Intraclass Correlated Observations: A Comparison of Two Existing Approaches and Their Extension

Po-Hsien Huang*, National Taiwan University, Taiwan

Li-Jen Weng, National Taiwan University, Taiwan

Meta-Analytic Structural Equation Modeling with Maximum Likelihood Estimation

Suzanne Jak*, University of Amsterdam, Netherlands

Frans J. Oort, University of Amsterdam, Netherlands

Debora L. Roorda, University of Amsterdam, Netherlands

Step Zero: Selecting a Structural Equation Model Via a Dispersion Function

Ben Goodrich*, Columbia University, USA

The Addition of LISREL Model Specification to OpenMx

Michael D. Hunter*, University of Oklahoma, USA

Moderator: Kevin Dahlman

Parallel Session: Test Design

Wednesday, 7/11/2012, 4:00-5:20, Yankee Hill I, II

Presenters (Marked with asterisk):

Heterogeneous Populations and Test Design

Alina A. von Davier*, Educational Testing Service, USA

Minh Q. Duong, Pacific Metrics, USA

The Correspondence of the Classical and IRT Methods in Statistical Test Specifications

Usama S. Ali*, Educational Testing Service, USA

Hongwen Guo, Educational Testing Service, USA

Gautam Puhani, Educational Testing Service, USA

Constructing Locally Invariantly Ordered Test Forms

Vincent Kieftenbeld*, Southern Illinois University - Edwardsville, USA

Song Foh Chew, Southern Illinois University - Edwardsville, USA

How Task Features Impact Evidence from Assessments Embedded in Simulations and Games

Russell G. Almond*, Florida State University, USA

Yoon Jeon Kim, Florida State University, USA

Gertrudes Velasquez, Florida State University, USA

Valerie J. Shute, Florida State University, USA

Automated Assembly of Test Forms with Anchors

Xinhui Xiong*, CTB/McGraw Hill, USA

Wim Van der Linden, CTB/McGraw Hill, USA

Moderator: Weldon Smith

Parallel Session: Equating II
Wednesday, 7/11/2012, 4:00-5:20, Lancaster IV, V, VI

Presenters (Marked with asterisk):

Nonparametric IRT Equating

Robert L. Smith*, Educational Testing Service, USA
Charles Lewis, Fordham University, USA
Tammy J. Trierweiler, Educational Testing Service, USA

Random Equivalent Group Equating Corrected for Population Differences

Anton Beguin*, Cito, Netherlands
Michael Nering, Measured Progress, USA
Won-suk Kim, Measured Progress, USA
Louis Roussos, Measured Progress, USA

The Comparison of Subscale Score Estimating Based on Horizontal and Vertical Equating Effects

Chien-Ming Cheng*, National Academy for Educational Research, Taiwan
Bor-Chen Kuo, National Taichung University of Education, Taiwan
Hsuan-Po Wang, National Taichung University of Education, Taiwan

An Recursive Algorithm for IRT Observed Score Equating

Yuehwei Chien, Pearson, USA
Chingwei David Shin*, Pearson, USA

Constructing Vertically Scaled Math Tests to Measure the Value-Add in China's VET Schools

Xiaoting Huang*, Peking University, China
Loyolka, Prashant, Peking University, China

Moderator: Michael Zweifel

Poster Session II

Wednesday, 7/11/2012, 5:30 - 6:30, Atrium

Presenters (Marked with asterisk):

1. Design and Implementation of Computerized Adaptive Test for Student Assessment in Uruguay

Mario Luzardo*, Universidad de la República, Uruguay

Diego Forteza, Universidad de la República, Uruguay

Dario Padula, Universidad de la República, Uruguay

Nelson Chaves, Universidad de la República, Uruguay

2. Modeling Change in a Correlation over Time: An SEM Approach

Jonathan Helm*, UC Davis, USA

Emilio Ferrer, UC Davis, USA

3. Power Analysis of Path Coefficients in SEM with OpenMx

Yi-Chun, Lin*, National Cheng Kung University, Taiwan

Chung-Ping, Cheng, National Cheng Kung University, Taiwan

4. Leveraging Planned Missing Data Designs to Increase Information and Efficiency

Kelly S. Crowe, University of Kansas, USA

Whitney G. Moore*, University of Kansas, USA

Mijke Rhemtulla, University of Kansas, USA

Todd D. Little, University of Kansas, USA

5. Power and Bias in Three-Forms Planned Missing Data Designs for Longitudinal Mediation

Richard M. Kinai*, University of Kansas, USA

Terrance D. Jorgenson, University of Kansas, USA

Graham G. Rifenbark, University of Kansas, USA

Fan Jia, University of Kansas, USA

Alexander M. Schoemann, University of Kansas, USA

Todd D. Little, University of Kansas, USA

Wei Wu, University of Kansas, USA

6. Power of Planned Missing Designs in Longitudinal Panel Designs

Kimberly Gibson*, University of Kansas, USA

Alexander M. Schoemann, University of Kansas, USA

Fan Jia, University of Kansas, USA

Graham G. Rifenbark, University of Kansas, USA

Terrance D. Jorgenson, University of Kansas, USA

Mijke Rhemtulla, University of Kansas, USA

Wei Wu, University of Kansas, USA

Todd D. Little, University of Kansas, USA

7. Confirming Construct Validity across Literacy and Income Levels using a Higher-order Invariance Factor Model

Geneva T. Dodson*, University of Virginia, USA
Steven M. Boker, University of Virginia, USA
John R. Nesselroade, University of Virginia, USA
Michele K. Evans, University of Virginia, USA
Alan B. Zonderman, University of Virginia, USA

8. Latent Variable Model Parameter Invariance Testing under a Variety of Measurement Invariance Conditions: A Monte Carlo Study

Brian French, Washington State University
Holmes Finch*, Ball State University

9. An Effect of Local Dependency for Reliability Estimation

Naoya Todo*, The University of Tokyo, Japan

10. Bayesian Statistical Framework for Coefficient Alpha Under Different Testing Modes

Yi-Fang Wu*, The University of Iowa, USA
Mengyao Zhang, The University of Iowa, USA
Anthony Fina, The University of Iowa, USA

11. Inter-Rater Reliability on the Unitization of Continuous Data: Untangling Accuracy and Precision Agreement

Kevin A Hallgren*, University of New Mexico, USA
Katie Witkiewitz, Washington State University, USA

12. The Effects of Baseline Estimation on the Validity, Reliability, and Precision of Estimates of Growth of Curriculum Based Measures of Reading (CBM-R): Implications for Practice

Ethan R. Van Norman*, University of Minnesota - Twin Cities, USA
Cengiz Zopluoglu, University of Minnesota - Twin Cities, USA
Theodore Christ, University of Minnesota - Twin Cities, USA

13. Using the Bollen-Stine Bootstrapping Method for Evaluating Approximate Fit

Hanjoe Kim*, Arizona State University, USA
Roger Millsap, Arizona State University, USA

14. Implementing a Family of Agreement Metrics

Stephen France*, University of Wisconsin at Milwaukee, USA

15. Bootstrapping Chi-square Statistics and Fit-index Structural Equation Models with OpenMx

Ching Lin*, National Cheng Kung University, Taiwan
Chung-Ping Cheng, National Cheng Kung University, Taiwan

16. Effect of Standard Deviation Difference of Ability Distributions in DIF Detection

Jihye Kim*, Georgia State University, USA
T. C. Oshima, Georgia State University, USA

17. Scheffe's Method for Incomplete Paired Comparisons Considering Latent Class

Kazuya Ikehara*, Waseda University, Japan

18. Estimating Latent Nonlinear Effects with OpenMx

Shu-Ping Chen*, National Chengchi University, Taiwan.
Chung-Ping Cheng, National Chengchi University, Taiwan.

19. Exploratory Non-hierarchical Cluster Analysis for Pre-post Designs

Satoshi Usami*, Tokyo Institute of Technology, Japan

20. An Aberrant Behavior of Pearson's Correlation Coefficient when Two Variables have Unequal Number of Categories

Kenpei Shiina, Waseda University, Japan
Saori Kubo*, Waseda University, Japan
Yoshihiro Ouchi, Josai International University, Japan
Takashi Ueda, Waseda University, Japan

21. Evaluation of Alternative Measures for Assessing Goodness-of-Fit within the Cumulative Logit Proportional Odds Model

Graham G. Rifenbark*, University of Kansas, USA
Carol M. Woods, University of Kansas, USA

22. Verifying Classification Effect by a Guttman-Based Person-Fit Index Set on a Two-Tier Number Sense Test

Tsai-Wei Huang*, National Chiayi University, Taiwan

23. Developing and Validating Bullying Bystander Perception Scale (BBPS) with Two Stages of Factor Analysis Process

Chiao-Lin Huang, Gang Ping Primary School in Chiayi, Taiwan
Tsai-Wei Huang*, National Chiayi University, Taiwan
I-Chi Tsao, National Chiayi University, Taiwan

24. Cognitive-Psychometric Modeling of Army Soldiers' Executive Functioning Performance on the Penn Conditional Exclusion Test

Michael Thomas*, University of California - San Diego, USA
Gregory G. Brown, University of California - San Diego; VA San Diego Healthcare System, USA
Ruben C. Gur, University of Pennsylvania, USA
John A. Hansen, University of Pennsylvania, USA

25. Psychometric Comparison of Three Patient-Reported Outcomes Instruments: LE CAT, FFI and FAAM

Man Hung*, University of Utah, USA
Charles L. Saltzman, University of Utah, USA
Shirley Hon, University of Utah, USA
Stefan Rhodewalt, University of Utah, USA
Ashley M. Woodbury, University of Utah, USA
Philip Tang, University of Utah, USA
Florian Nickisch, University of Utah, USA
Timothy Beals, University of Utah, USA
Daniel O. Clegg, University of Utah, USA
Tom Greene, University of Utah, USA

26. Augmenting the Achievement Goal Questionnaire-Revised

Justin Young*, University of Houston, USA

27. Exploring Gender Differential Bundle Functioning in an Algebra Readiness Assessment

Lee LaFond*, The University of Iowa, USA
Kathleen Banks, The University of Iowa, USA
Catherine Welch, Iowa Testing Programs, USA

28. Applying Mixed-Multivariate Beta Distribution to Item Response Theory

Tomoya Okubo*, The National Center for University Entrance Examinations, Japan

Main Conference, Thursday, July 12, 2012

Dissertation Award Talk

Thursday, 7/12/2012, 8:30-9:10, Ballroom

Recipient: Brandon Turner, The Ohio State University, USA

Dissertation Title: *Likelihood-Free Bayesian Modeling*

Presenter: Alberto Maydeu-Olivares, University of Barcelona, Spain

Invited Symposium: New Developments in Psychometrics with R
Thursday, 7/12/2012, 9:20-10:40, Olive Branch

Organizer: Florian Wickelmaier, Universität Zürich, Switzerland

Presenters (Marked with asterisk):

simsem: SIMulated Structural Equation Modeling in R

Alexander M. Schoemann*, University of Kansas, USA

Sunthud Pornprasertmanit, University of Kansas, USA

Patrick J. Miller, University of Kansas, USA

Model-based recursive partitioning for Bradley-Terry models

Florian Wickelmaier*, Universität Zürich, Switzerland

Carolin Strobl, Universität Zürich, Switzerland

Achim Zeileis, Universität Innsbruck, Austria

Mixtures of Rasch Models with R Package psychomix

Hannah Frick*, Universität Innsbruck, Austria

Carolin Strobl, Universität Zürich, Switzerland

Friedrich Leisch, Universität für Bodenkultur Wien, Austria

Achim Zeileis, Universität Innsbruck, Austria

mirt: A Multidimensional Item Response Theory Package in R

Phil Chalmers*, York University, Canada

Chair: Florian Wickelmaier

Parallel Session: Estimation III
Thursday, 7/12/2012, 9:20-10:40, Arbor I

Presenters (Marked with asterisk):

Predicting Psychometric Parameters Derived Under Dominance and Ideal Point Assumptions

Phillip M. Mangos*, Kronos Incorporated, USA
Anne Thissen-Roe, Kronos Incorporated, USA
John Morrison, Kronos Incorporated, USA

Rethinking the Newton Type Algorithms for the Estimation of Item Response Theory Model

Xinming An*, SAS Institute, Inc, USA
Yiu-Fai Yung, SAS Institute, Inc, USA

A Proposed Measure of Internal Consistency Reliability: Coefficient L-alpha

Todd Christopher Headrick*, Southern Illinois University - Carbondale, USA
Yanyan Sheng, Southern Illinois University - Carbondale, USA

***Expanded Orthogonal Procrustes Transformation and its Applications to Individual Differenced
Multidimensional Scaling and Multiple-Group Factor Analysis***

Shin-ichi Mayekawa*, Tokyo Institute of Technology, Japan
Kensuke Okada, Shenshu University, Japan

Higher-Order Item Response Theory Based Plausible Values Method

Shiau-Chian Tseng*, National Taichung University, Taiwan
Bor-Chen Kuo, National Taichung University, Taiwan
Huey-Min Wu, National Academy for Educational Research, Taiwan

Moderator: Michael Zweifel

Parallel Session: Approaches I
Thursday, 7/12/2012, 9:20-10:40, Yankee Hill III

Presenters (Marked with asterisk):

Sample Fluctuations of Reliability Coefficients

Pieter Oosterwijk*, Tilburg University, Netherlands
Andries van der Ark, Tilburg University, Netherlands
Klaas Sijtsma, Tilburg University, Netherlands

No Need to be Discrete: A Method for Continuous Time Mediation Analysis

Pascal R. Deboeck*, University of Kansas, USA
Kristopher J. Preacher, Vanderbilt University, USA

Comparison Between the Power Method and Maximum Entropy Procedure as a Real Data Approximated Data Generation Procedure

Yen Lee*, Wayne State University, USA
Shlomo Sawilowsky, Wayne State University, USA
Chung-Ping Cheng, National Cheng Kung University, Taiwan

Mapping of Cognitive Maps via Bidimensional and Bivariate Polynomial Regressions

Justin Kern*, University of Illinois at Urbana - Champaign, USA
Sungjin Hong, University of Illinois at Urbana - Champaign, USA

Revealing Switches in Children's Memory Processes: A Dynamic Latent Variable Model

Gabriela Koppenol-Gonzalez*, Tilburg University, Netherlands
Samantha Bouwmeester, Erasmus University Rotterdam, Netherlands
Jeroen Vermunt, Tilburg University, Netherlands

Moderator: Kevin Dahlman

Parallel Session: IRT III
Thursday, 7/12/2012, 9:20-10:40, Yankee Hill I, II

Presenters (Marked with asterisk):

Using the Testlet Response Model as a Shortcut to Multidimensional Item Response Theory Subscore Computation

David Thissen*, The University of North Carolina at Chapel Hill, USA

Evaluating the Impact of Alternative Models for Between and Within Construct Relations

Ronli Diakow*, University of California - Berkeley, USA

David Torres Iribarra, University of California - Berkeley, USA

Mark Wilson, University of California - Berkeley, USA

Item Response Theory in the Style of Collaborative Filtering

Yoav Bergner*, Massachusetts Institute of Technology, USA

Stefan Droschler, Ostfalia & MIT, USA

Saif Rayyan, Massachusetts Institute of Technology, USA

Daniel Seaton, Massachusetts Institute of Technology, USA

Gerd Kortemeyer, Michigan State University & MIT, USA

David Pritchard, Massachusetts Institute of Technology, USA

A New IRT Approach Using MCMC for Integrative Data Analysis of Alcohol Intervention Studies

Yan Huo*, Rutgers University, USA

Jimmy de la Torre, Rutgers University, USA

Eun-Young Mun, Rutgers University, USA

Helene White, Rutgers University, USA

Anne Ray, Rutgers University, USA

Yand Jiao, Rutgers University, USA

Moderator: Weldon Smith

State of the Art: The Challenges of Functional Magnetic Resonance Imaging Data
Thursday, 7/12/2012, 11:00-11:30, Lancaster I, II, III

Presenter: Nicole A. Lazar, The University of Georgia, USA

The past twenty years have seen the emergence of functional magnetic resonance imaging (fMRI) as a major research and clinical tool in the study of the working human brain. Although fMRI gives only an indirect measurement of brain function, this is sufficient to provide cognitive neuroscientists with a wealth of information, previously unavailable, about which parts of the brain are involved in specific tasks or react to particular stimuli. For statisticians and other data scientists, fMRI has also proved to be a fertile research ground, since the data present a variety of challenges to "standard" analysis paths. These include: a large amount of data on a single subject, a relatively small number of subjects, a lot of noise, spatial and temporal correlations of a complicated nature. In this talk, I will review the basics of fMRI data and their challenges. I will then survey some of the most commonly used statistical analyses for handling these challenges.

Chair: Carol M. Woods, University of Nebraska–Lincoln, USA

State of the Art: The Theory and Practice of Validation
Thursday, 7/12/2012, 11:00-11:30, Lancaster IV, V, VI

Presenter: Michael Kane, ETS, USA

To validate an interpretation or use of test scores is to evaluate the plausibility of the claims based on the test scores, and therefore, validation requires a clear understanding of these claims. The *argument-based approach to validation* is intended as a methodological framework for explicating these claims. The core idea is to state the proposed interpretations and uses explicitly, and in some detail, as an *interpretive argument* leading from the observed test performances to the proposed interpretations and uses of the scores. The coherence, completeness, and plausibility of this network of inferences and assumptions can then be evaluated, with the results of this evaluation being summarized as a *validity argument*. That is, in validating a proposed interpretation or use, we first lay out the claims being made, and then we systematically evaluate these claims.

An argument-based approach to validation allows for a wide range of interpretations and uses of test scores and seeks to tailor the validation effort to fit the proposed interpretations/uses included in the interpretive argument. Fairness plays a major role in the evaluation of both the interpretations and uses of test scores. In the context of interpretations, fairness can be defined in terms of equitable treatment of test takers and of the consistency of score meanings across groups. In the context of test use, testing programs are evaluated in terms of their outcomes, and therefore the validity of the program depends on the consequences of the program.

Chair: Carina McCormick, University of Nebraska – Lincoln, USA

Invited Talk: The Random-Effect Strategy in the IRT Framework
Thursday, 7/12/2012, 11:40-12:20, Lancaster I, II, III

Presenter: Wen Chung Wang, Hong Kong Institute of Education, China

Test data may be very complicated such that standard IRT models become inefficient. For example, items in the same testlet may be locally dependent, after controlling for the latent trait of interest. Two major strategies have been adopted to consider local dependence among items. In the “fixed-effect” strategy, items that might show local dependence are reorganized as an “item bundle” and a set of fixed-effect item parameters are then used to describe the relationship among all possible response patterns in the item bundle. The fixed-effect strategy, although very comprehensive, becomes difficult to manage when the number of items to form a bundle or the number of item categories is large.

The random-effect strategy is an alternative, in which a set of random-effect parameters (latent variables) are added to standard IRT models. Testlet response theory models adopt this strategy to account for local dependence among items within a testlet. It is hoped through the inclusion of additional latent variables, items will become locally independent. The advantage of the random-effect strategy is that the usual parameters attached to individual items (e.g., the a -, b , and c -parameters) are attainable, with the potential cost of computational burden due to high dimensionality.

In this presentation, I will introduce the random-effect strategy using testlets as a template, and then apply this strategy to tackle the following testing issues: (a) positively and negatively worded items in the same inventory, (b) subjective judgment on the category labels of rating scale items across respondents, (c) intra- and inter-rater variations in severity, (d) local dependence among repeated ratings due to interaction among raters prior to giving ratings, and (e) nonignorable choice effect of examinee-selected items.

Chair: Daniel Bolt, University of Wisconsin - Madison, USA

Parallel Session: FIT III
Thursday, 7/12/2012, 1:50-3:10, Olive Branch

Presenters (Marked with asterisk):

Evaluating IRT- and CTT-based Approaches of Estimating Measurement Classification Consistency and Accuracy Indices

Nina Deng*, University of Massachusetts Medical School, USA
Ronald Hambleton, University of Massachusetts, USA

The Investigations of Information Criteria on Selecting the Numbers of Latent Classes in Multilevel Latent Class Model

Jungkyu Park*, McGill University, Canada
Hsiu-Ting Yu, McGill University, Canada

Comparison of IRT Classification Accuracy Indices

Won-Chan Lee*, The University of Iowa, USA
Mikyung Lee, Pearson, USA

Effect of Scale Purification on the Assessment of Differential Rater Functioning

Cheng-Te Chen*, National Tsing Hua University, Taiwan
Wen-Chung Wang, The Hong Kong Institute of Education, China
Ching-Lin Shih, National Sun Yat-Sen University, Taiwan

Properties of the Adjusted Rand Index

Douglas Steinley*, University of Missouri, USA

Moderator: Grant Orley

Parallel Session: Estimation IV
Thursday, 7/12/2012, 1:50-3:10, Arbor I

Presenters (Marked with asterisk):

Optimal Estimation Method of Multidimensional IRT Using Simulated Annealing

Jaehoon Seol*, Prometric Inc., USA
Seonho Shin, Prometric Inc., USA
Larissa Smith, Excelsior College, USA

A Proposal for an Index of Saturation of Ideas Using Estimation Methods of Population

Kotaro Ohashi*, Waseda University, Japan
Hideki Toyoda, Waseda University, Japan
Kazuya Ikehara, Waseda University, Japan

An EM Algorithm for Hawkes' Process

Peter F. Halpin*, University of Amsterdam, Netherlands
Raoul P.P.P. Grasman, University of Amsterdam, Netherlands

Latent Growth Models with Non-ignorable Missing Data: Bayesian Inference and Model Selection Criteria

Zhenqiu (Laura) Lu*, The University of Georgia, USA
Zhiyong (Johnny) Zhang, University of Notre Dame, USA
Allan Cohen, The University of Georgia, USA

Multiple imputation using CATREG

Joost R. Van Ginkel*, Leiden University, Netherlands
Anita J. van der Kooij, Leiden University, Netherlands
Mariëlle Linting, Leiden University, Netherlands

Moderator: Michael Zweifel

Parallel Session: Applications III
Thursday, 7/12/2012, 1:50-3:10, Arbor II

Presenters (Marked with asterisk):

Generalized Mixed Models to Adjust Programme Degree Efficiency Indicators for Students' Socio-Cultural Characteristics

Mariano Porcu*, Dipartimento di Scienze Sociali e delle Istituzioni, Italy
Isabella Sulis, Dipartimento di Scienze Sociali e delle Istituzioni, Italy

Modeling Situational Judgment Items with Multiple Distractor Dimensions

Anne Thissen-Roe*, Kronos Incorporated, USA

The Measurement of the Individual Price Sensitivity Using Item Response Theory

Takashi Akiyama*, Waseda University, Japan
Koken Ozaki, The Institute of Statistical Mathematics, Japan
Hideki Toyoda, Waseda University, Japan

Gender DIF in Reading Tests: A Meta-Analysis

Hongli Li*, Georgia State University, USA
Charles Hunter, Georgia State University, USA
Takako Chris Oshima, Georgia State University, USA

Moderator: Ayo Akinleye

Parallel Session: Statistics & Data Analysis III
Thursday, 7/12/2012, 1:50-3:10, Yankee Hill III

Presenters (Marked with asterisk):

The Random Estimator Paradox: Irreplicability in the Behavioral Sciences

Clinton P. Davis-Stober*, University of Missouri, USA
Jason Dana, University of Pennsylvania, USA

Hybrid Kalman Filter models for Unequally Spaced Time Series Designs

Lawrence Lo*, The Pennsylvania State University, USA
Peter Molenaar, The Pennsylvania State University, USA
Michael Rovine, The Pennsylvania State University, USA
Nilam Ram, The Pennsylvania State University, USA

Confidence Interval for a Bounded Parameter: With Application to Variance Component Models in Twin Studies

Hao Wu*, Virginia Commonwealth University, USA
Michael C. Neale, Virginia Commonwealth University, USA

Default Bayes Factors to Replace ANOVA tests

Jeffrey N. Rouder*, University of Missouri, USA
Richard D. Morey, University of Groningen, Netherlands
Jordan M. Province, University of Missouri, USA

On the Decisions of the Random Component Structure for Applying Linear Mixed Effect Regression Models to Psycholinguistic Data

Hsiu-Ting Yu*, McGill University, Canada

Moderator: Kevin Dahlman

Parallel Session: Approaches II
Thursday, 7/12/2012, 1:50-3:10, Yankee Hill I, II

Presenters (Marked with asterisk):

Modeling Motivated Misreports to Sensitive Survey Questions
Ulf Bockenholt*, Northwestern University, USA

An Application of the Mixture Rasch Model: Modeling Differences in Test-Taking Motivation
Marie-Anne Mittelhaeuser*, Cito/ Tilburg University, Netherlands
Anton BÈguin, Cito, Netherlands
Klaas Sijtsma, Tilburg University, Netherlands

Differences in Vague Quantifier Interpretation: Influences on and Detection by Latent Variable Models
Jamie Marincic*, Mathematica Policy Research, USA

A Multi-faceted Look at Context Effects
Yongwei Yang*, Gallup, USA
Sangeeta Agrawal, Gallup, USA
James K. Harter, Gallup, USA
Dan Witters, Gallup, USA

A Four-Parameter Mixture Item Response Theory Model
Hong Jiao*, University of Maryland, USA
George Macready, University of Maryland, USA
Matthew Johnson, Columbia University, USA

Moderator: Weldon Smith

Presidential Address: *Seeking a balance between the statistical and scientific elements in psychometrics*
Thursday, 7/12/2012, 3:30-4:30, Ballroom

Presenter: Mark Wilson, University of California - Berkeley, USA

Abstract: In this presentation, I will review some aspects of several different psychometric projects that I have been involved in, emphasizing the nature of the work of the psychometricians involved, especially the balance between the statistical elements of that work, and its scientific aspects. The intent is to seek to understand where psychometrics, as a discipline, might be headed, in part at least, by considering one particular journey through its recent past. In contemplating this, we must look to psychometrics journals to see how psychometricians represent themselves to themselves, and in a complementary way, look to substantive journals to see how psychometrics is represented there (or perhaps, not represented). In the concluding part to the talk, I present one recent project, where the roles of the psychometricians and the substantive researchers have had to become intertwined in order to make satisfactory progress.

Chair: Klaas Sijtsma, Tilburg University, Netherlands

Conference Closing Ceremony
Thursday, 7/12/2012, 4:30-4:50, Ballroom

All participants are warmly invited to attend the Conference Closing Ceremony

Agenda:

Speech by Mark Wilson, President of Psychometric Society

Speech by Hua-Hua Chang, President-Elect of Psychometric Society

Speech by 2013 International Meeting of Psychometric Society Local Organizing Committee

Business Meeting

Thursday, 7/12/2012, 5:00-5:40, Lancaster IV, V, VI

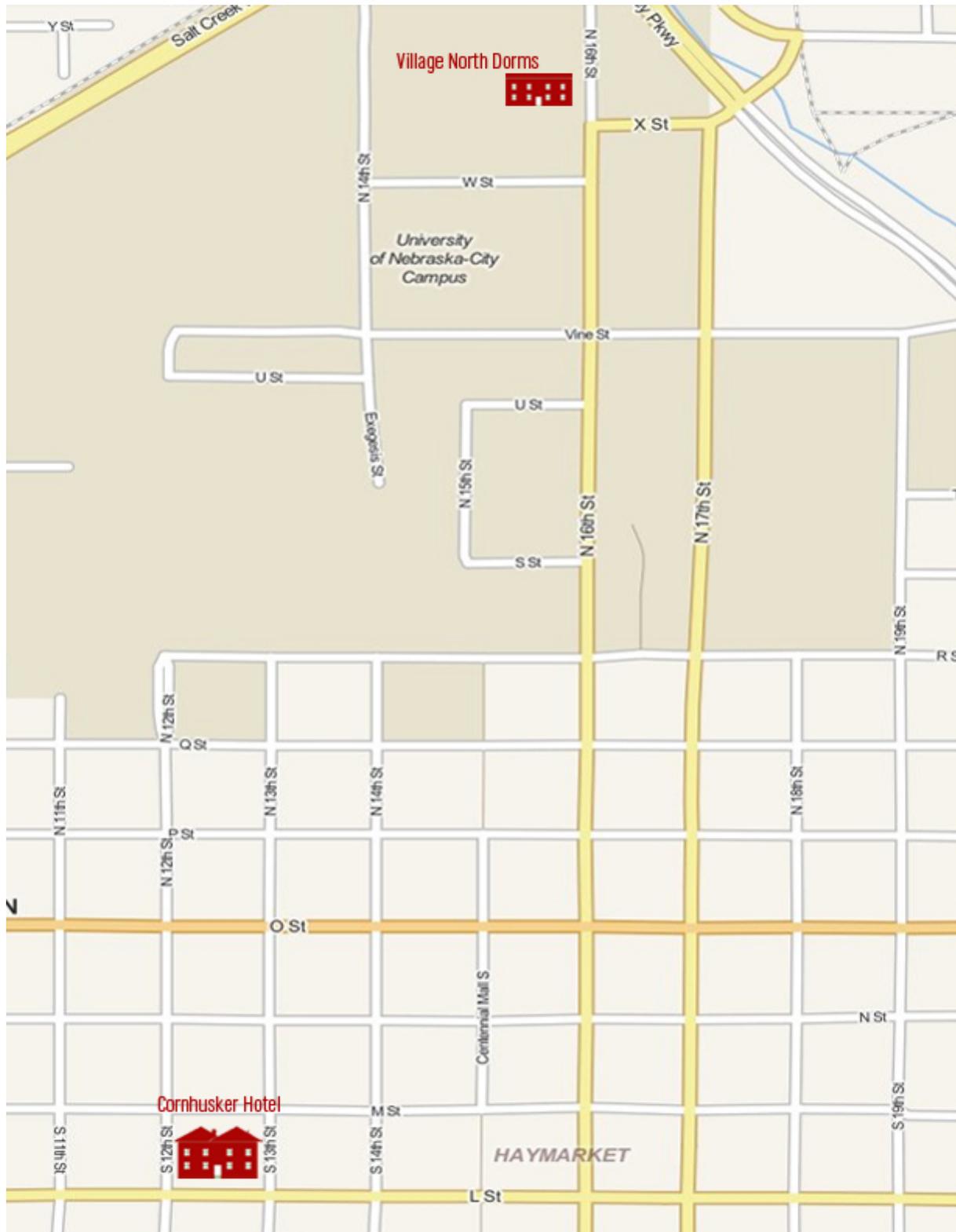
This meeting is open to all members of the Psychometric Society.

Banquet and Best Junior Presenter Award and Best Poster Presentation Award

Thursday, 7/12/2012, 6:00-8:00, Ballroom

All participants are cordially invited to attend the banquet. The Junior Presentation Award and Best Poster Presentation Award will be announced during the banquet.

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