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Arizona State University
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PROFESSIONAL INFORMATION

Education

Doctor of Philosophy
May, 2006

Department of Measurement, Statistics & Evaluation
College of Education, University of Maryland
*Posterior Predictive Model Checking for
Multidimensionality in Item Response Theory
and Bayesian Networks.*
Supervisor: Dr. Robert J. Mislevy

Master of Arts
May, 2002

Department of Measurement, Statistics & Evaluation
College of Education, University of Maryland
*A Statistical Test For Comparing Nonnested
Covariance Structure Models*
Supervisor: Dr. Gregory R. Hancock

Bachelor of Arts
May, 2001

Department of Philosophy, College of Arts &
Humanities, University of Maryland
*On the Free Will Defense to the Logical Problem
of Evil*
Supervisor: Dr. Allen Stairs
Honors, Summa cum Laude, Phi Beta Kappa

Employment

Assistant Professor
2006-present

Division of Psychology in Education
Mary Lou Fulton College of Education
Arizona State University

*Harold Gulliksen Psychometric
Research Fellow*
2005-2006

Educational Testing Service
Supervisor: Dr. Sandip Sinharay

Research Assistant
2001-2006

Department of Measurement, Statistics & Evaluation
College of Education, University of Maryland

Intern
2005

Educational Testing Service

Course Instructor
2003-2004

Department of Measurement, Statistics & Evaluation
College of Education, University of Maryland

SCHOLARLY ACTIVITY

Articles In Refereed Journals

- Levy, R., & Hancock, G. R. (in press). A framework of statistical tests for comparing mean and covariance structure models. *Multivariate Behavioral Research*.
- Levy, R., & Mislevy, R. J. (2004). Specifying and refining a measurement model for a computer-based interactive assessment. *International Journal of Testing*, 4, 333-369.
- Behrens, J. T., Mislevy, R. J., Bauer, M., Williamson, D. W., & Levy, R. (2004). Introduction to evidence centered design and lessons learned from its application in a global e-learning program. *International Journal of Testing*, 4, 295-301.

In Edited Volumes

- Levy, R., Behrens, J. T., & Mislevy, R. J. (2006). Variations in adaptive testing and their on-line leverage points. In D. D. Williams, S. L. Howell, & M. Hricko (Eds.) *Online assessment, measurement and evaluation: Emerging practices* (pp. 180-202). Hershey, PA: Information Science Publishing.
- Williamson, D. M., Almond, R. G., Mislevy, R. J., & Levy, R. (2006). An application of Bayesian networks in automated scoring of computerized simulation tasks. In D. M. Williamson, R. J. Mislevy, & I. I. Bejar (Eds.) *Automated scoring of complex tasks in computer-based testing* (pp. 201-257). Mahwah, NJ: Erlbaum Associates.
- Mislevy, R. J., & Levy, R. (under review). Bayesian psychometric modeling from an evidence-centered design perspective. In C. R. Rao and S. Sinharay (Eds.) *Handbook of statistics, Volume 17*. North-Holland: Elsevier.
- Mislevy, R. J., Levy, R., Kroopnick, M., & Wise, D. (under review). Evidentiary foundations of mixture item response theory models. Forthcoming in G. R. Hancock & K. M. Samuelsen (Eds.) *Advances in latent variable mixture models*.

Manuscripts Under Review

Levy, R. Within-item multidimensionality detection for IRT via posterior predictive model checking. Submitted to *Applied Psychological Measurement*.

Technical Reports

Levy, R., & Mislevy, R. J. (2004). *Specifying and Refining a Measurement Model for a Simulation-Based Assessment* (CSE Tech. Rep. No. 619). Los Angeles: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CRESST).

Refereed Presentations (including accepted presentations)

Levy, R., Mislevy, R. J., & Sinharay, S. (2006). Posterior predictive model checking for multidimensionality in item response theory. Paper presented at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, April 2006.

Levy, R., & Hancock, G. R. (2006). Alternative approaches to validity in a modeling framework. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA, April 2006.

Choi, J., Levy, R., & Hancock, G. R. (2006). Markov chain Monte Carlo estimation method with covariance data for structural equation modeling. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA, April 2006.

Kroopnick, M., & Levy, R. (2006). Comparing fully Bayesian and marginal maximum likelihood estimation of multidimensional item response models for polytomous items. Paper presented at the annual meeting of the National Council on Measurement in Education, San Francisco, CA, April 2006.

Levy, R. (2005). Posterior predictive model checking for cognitively-based psychometric models. Paper presented at the international meeting of the Psychometric Society, Tilburg, The Netherlands, July, 2005.

Levy, R., & Hancock, G. R. (2005). A framework of statistical tests for comparing mean and covariance structure models. Paper presented at the annual meeting of the American Educational Research Association, Montréal, Canada, April 2005.

Mislevy, R. J., & Levy, R. (2005). On the roles of knowledge representations in assessment. Paper presented at the annual meeting of the American Educational Research Association, Montréal, Canada, April 2005.

Frezzo, D. C., **Levy, R.**, & Kroopnick, M. (2005). Knowledge representations in curricular and psychometric design. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada, April 2005.

Levy, R., & Hancock, G. R. (2004). A framework of statistical tests for comparing covariance structure models. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA, April, 2004.

Levy, R., & Hancock, G. R. (2003). A statistical test for nonnested covariance models.. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL, April, 2003.

Levy, R., & Mislevy, R. J. (2003). Specifying and refining a complex measurement model. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL, April, 2003.

Invited Presentations

Mislevy, R. J., **Levy, R.**, Kroopnick, M., & Wise, D. (2006). Evidentiary foundations of mixture item response theory models. Paper presented at the 2006 annual Center for Integrated Latent Variable Research conference, College Park, MD, May 2006.

Levy, R. (2005). Posterior predictive model checking for within-item multidimensionality. Presented at the Department of Mathematics and Statistics, Wright State University, Dayton, OH, November 2005.

Levy, R. (2005). Introduction to item response theory. Presented at the Basic Process in Addictive Behaviors Laboratory, University of Maryland, College Park, MD, September 2005.

Levy, R. (2005). Introduction to structural equation modeling. Presented at the Basic Process in Addictive Behaviors Laboratory, University of Maryland, College Park, MD, September 2005.

Levy, R. (2005). Introduction to factor analysis. Presented at the Basic Process in Addictive Behaviors Laboratory, University of Maryland, College Park, MD, September 2005.

Levy, R. (2002). Markov chain Monte Carlo estimation for assessment: Procedures and practices. Presented at Educational Testing Service, Princeton, NJ, June 2002.

INSTRUCTIONAL ACTIVITY

Course Instruction

Introduction to Educational Statistics (EDMS 451) <i>An undergraduate course in introductory statistics through simple regression and nonparametric χ^2 tests</i>	University of Maryland 2003-2004
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Invited Instruction

Mathematical & Simulation Techniques (EDMS 779) Topic: <i>WinBUGS Programming</i>	University of Maryland 2005
Foundations of Assessment (EDMS 738) Topic: <i>Introduction to Bayesian Inference</i>	University of Maryland 2005
Bayesian Inference in Assessment (EDMS 738) Topic: <i>Posterior Predictive Model Checking</i>	University of Maryland 2004
Advanced Item Response Theory (EDMS 769G) Topic: <i>Markov chain Monte Carlo in IRT</i>	University of Maryland 2004
Factor Analysis (EDMS 657) Topic: <i>Foundations of factor analysis</i>	University of Maryland 2004
Multivariate Data Analysis (EDMS 771) Topic: <i>Polytomous logistic regression</i>	University of Maryland 2002-2005

Workshops Taught

<i>Bayesian Inference Networks</i>	Educational Testing Service Princeton, NJ, Jan., 2003
<i>Markov Chain Monte Carlo Methods</i>	Educational Testing Service Princeton, NJ, Jan., 2003
<i>WinBUGS Software Training</i>	Educational Testing Service Princeton, NJ, Jan., 2003

RESEARCH PROJECTS

Co-Principal Investigator

Posterior Predictive Model Checking for Within-Item Multidimensionality in IRT

PI: Dr. Robert J. Mislevy
University of Maryland

Educational Testing Service
2005-2006

Key Personnel

VentureMap

PI: Douglas Weihnacht
MW Productions, Inc.

US Department of Education
2006

SERVICE

Professional Service

Editorial Assistant
2003-2005

Hancock, G. R., & Mueller, R. O. (Eds.) (2006). *Structural equation modeling: A second course*. Greenwich, CT: Information Age Publishing.

Reviewer
2005

Rao, C. R., & Sinharay, S. (Eds.) *Handbook of statistics, Volume 27: Psychometrics*. North-Holland: Elsevier.

Ad hoc Reviewer
2004-2005

Psychometrika

Ad hoc Reviewer
2005-2006

Educational Assessment

Reviewer
2005-present

National Council on Measurement in Education

Reviewer
2005-present

American Educational Research Association
Structural Equation Modeling Special Interest Group

Reviewer
2005-present

American Educational Research Association
Educational Statisticians Special Interest Group

Reviewer
2003-present
American Educational Research Association

Departmental Service

Committee Member
2004-2005
Faculty Search Committee
Department of Measurement, Statistics & Evaluation
University of Maryland

Mentor
2002-present
5th Year B.A./M.A. Program
Department of Measurement, Statistics & Evaluation
University of Maryland

HONORS AND MEMBERSHIPS

Professional and Academic Honors and Awards

Harold Gulliksen Psychometric Research Fellow Supervisor: Dr. Sandip Sinharay	Educational Testing Service	2005-2006
Outstanding Doctoral Student Award	University of Maryland College of Education	2005
Distinguished Teaching Assistant	University of Maryland Center for Teaching Excellence	2003
W.E. Schlartzki Prize in Philosophy	University of Maryland Department of Philosophy	2001

Professional Memberships

Psychometric Society	2005-present
American Statistical Association	2004-present
National Council on Measurement in Education	2003-present
AERA Educational Statisticians Special Interest Group	2003-present
AERA Structural Equation Modeling Special Interest Group	2003-present

PROFESSIONAL DEVLEOPMENT

Workshops Attended

A Nonlinear Mixed Models Approach to IRT
Instructors: Paul de Boeck, Mark Wilson,
Frank Rijmen, & Francis Tuerlinckx

Montréal, CA
April, 2005

Multilevel Modeling in Mplus
Instructor: Bengt Muthén

Baltimore, MD
March, 2005

Introduction to Structural Equation Modeling
Instructors: Gregory R. Hancock &
Ralph O. Mueller

College Park, MD
November, 2002