

**RICHARD M. SMITH**

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**EDUCATION**

Ph.D. Education University of Chicago 1982  
MESA Special Field - Extensive course work in Rasch measurement models.  
Dissertation Topic - Detecting measurement disturbances with the Rasch model

Research Methods and Measurement Lehigh University 1970-73  
Completed all requirements in Ed. D. program, save completion of dissertation. Extensive course work in statistics and research design for the social sciences. All measurement course work based on the true-score model.

M.A. Secondary Education (Art Education) Lehigh University 1968

B.A. Philosophy (Information Sciences) Lehigh University 1967

**PROFESSIONAL EXPERIENCE**

Senior Director, Measurement 2008 to present  
Senior Psychometrician 2003 to 2008

Data Recognition Corporation, Maple Grove, Minnesota  
Provide psychometric services for large-scale assessment programs including Alaska, South Carolina, Nebraska, Pennsylvania, Arkansas, and Minnesota. Conducted standard setting meetings using a variety of methods in Minnesota, Pennsylvania, Louisiana, Alaska, North Carolina, South Carolina, Iowa, Nebraska, and New York. Developed the residual analysis tool (RAT) for Alaska and South Carolina.

Director of Research and Evaluation 2002  
Educational Data Systems, Morgan Hill, California  
Lead psychometrician for the California Golden State Examination program and California Assessments in Career Education program. Responsible for all psychometric and statistical analysis for the examination program and producing all technical materials for the program. Director of the Research and Evaluation department. Responsible for all psychometric research and evaluation of all psychometric contracts at EDS.

Principal Research Scientist 2001 to 2002  
American Institutes for Research, Sacramento, California  
Lead psychometrician for the California High School Exit Examination. Responsible for all psychometric and statistical analysis for the examination and producing all technical materials for the program. Lead psychometrician for the South Carolina End of Course Examination Program. Responsible for all psychometric and statistical analysis for the examination and producing all technical materials for the program.

Associate in Medical Education 2000 to 2001  
College of Medicine, University of Florida, Gainesville, Florida  
Responsible for providing psychometric, statistical and research design expertise for the faculty and staff of the College of Medicine. Extensive research into the psychometric properties of medical student clinical assessment based on simulated patients.

Senior Research Scientist 1994 to 1999  
Rehabilitation Foundation, Inc. / Marianjoy Rehabilitation Hospital, Wheaton, Illinois  
Responsible for ongoing psychometric analysis and development of PECS<sup>®</sup>, a rehabilitation outcome evaluation

system which uses the Rasch partial credit model to form six LifeScales™ that evaluate a patient's functional level. Assist clinical staff in design and analysis of research projects in organizational effectiveness and therapeutic efficacies. Assist in program evaluation for various clinical areas. Provide contracted psychometric services to Foundation clients in test analysis, equating, and score reporting.

Director, Division of Educational Measurements

1987 to 1990

American Dental Association, Chicago, Illinois

The Division of Educational Measurements was responsible for the development, production, and administration of two graduate level admission testing programs, the Dental Admission Test and the Optometry Admission Test. The department was also responsible for the collection and dissemination of dental school curriculum data that is published in the Annual Reports on Dental Education. In addition to department management responsibilities, developed and implemented Rasch item banking, test equating, and score reporting, as well as item and person analysis programs. Conducted research on components of item difficulty in the Perceptual Ability Test and sex differences on various tests. The DAT and the OAT were the first two graduate admissions testing programs in the United States to use Rasch person analysis to report item response information to admission committees to aid in the interpretation of standard scores. The staff of the Division included four assistant directors, four research associates and six clerical staff.

Postdoctoral Fellow

1986

Educational Testing Service, Princeton, New Jersey

Conducted independent research in the applications of the Rasch model, distributional properties of Rasch fit statistics, and the use of the Rasch model in detecting item bias in GRE and GMAT quantitative examinations.

Research Manager

1984 to 1986

Johnson O'Connor Research Foundation, Chicago, Illinois

Planned, developed, and managed research department for the Foundation. Activities of the department include analyzing and improving existing tests, developing new measures of human aptitudes, designing and conducting norming and validity studies, and conducting research in component analysis and partial credit scoring. This department had a budget of approximately \$550,000 per year and included a staff of six full-time researchers, eight research consultants, and clerical support staff.

Assistant Director, Test Development

1982 to 1984

American College Testing Program, Iowa City, Iowa

ACT Assessment Test Development - Constructed Math and Social Studies tests. Monitored item performance for all tryout and national test administrations. Conducted research on item bias and the use of partial credit scoring for mathematics tests. Organized and chaired Subject Review Committees for English, Math and Social Studies tests. Wrote and edited mathematics items.

ACT PEP Program - Supervised and coordinated all psychometric aspects of the ACT Proficiency Examination Program. Developed and implemented diagnostic score reporting for PEP Nursing examinations. Monitored psychometric quality of all exams.

ACT CPP Program - Revised Career Placement Program test battery. This included an expansion of the mathematics tests to include elementary algebra, intermediate algebra, and plane geometry. Analyzed results of national norming to ensure psychometric quality of the tests.

GED Test Development - Constructed three versions of five different subtests for GED contract. Developed plan for soliciting item writers based on national sampling of high school, college, and adult education teachers. Monitored tryout item performance. Edited mathematics items.

Director, Academic Testing Center

1974 to 1980

Mercer County Community College, Trenton, New Jersey

Responsible for the design, implementation, and operation of the Academic Testing Center. This included responsibility for all academic placement, standardized testing, and coordinating all psychometric research at the College. Designer and principal author of the copyrighted Computer Assisted Student Testing system (CAST). This system contains programs for item banking, computer assisted test construction, on-line scoring and record keeping, and statistical analysis. These programs have been acquired by three other colleges: Quincy Community College, Quincy, Mass., John Jay College, New York, N.Y., and Brookdale Community College, Lincroft, N.J. College coordinator for the New Jersey College Basic Skills Testing Program and member/co-chairman of state-wide Test and Measurement subcommittee for the New Jersey College Basic Skills Council. This program was mandated by the

state for all incoming freshmen at state-supported colleges.

## **TEACHING EXPERIENCE**

### Associate Professor

1991 to 1994

Department of Educational Measurement and Research, College of Education  
University of South Florida, Tampa, Florida

Taught required measurement course, based on true score model, in M. Ed. programs and two special topics courses in applications of Rasch measurement models (The dichotomous model including computer adaptive testing and linear logistic test model were covered in the first course and rating scale, partial credit, and three facets models were covered in the second course.) for Ph.D. programs in College of Education. Fully credentialed faculty status awarded Fall 1992.

### Visiting Associate Professor

1990 to 1991

Department of Educational Psychology, Graduate Center  
City University of New York, New York, New York

Taught two-course sequence in inferential statistics and two special topics seminars in applications of Rasch measurement models for Educational Psychology Ph.D. program. The Fall 1990 seminar focused on applications of the dichotomous Rasch model including the linear logistic test model. The Spring 1991 seminar focused on applications of the rating scale and partial credit Rasch models.

### Adjunct Assistant Professor

Spring 1991

College of Education, Lehigh University, Bethlehem, Pennsylvania

Taught second course in doctoral statistics sequence. Focus of the course was analysis of variance and related topics.

### Visiting Lecturer

Summer 1986

College of Education, Ohio State University, Columbus, Ohio

Taught five-week graduate seminar in the applications of the Rasch model. Two students who took this seminar completed dissertations based on the use of the Rasch model.

### Instructor

Fall 1981

Chicago City-Wide College, Chicago, Illinois

Taught College Algebra, College Trigonometry, and Basic Math in College Acceleration Program.

### Adjunct Assistant Professor

1974 to 1980

Mercer County Community College, Trenton, New Jersey.

Taught Statistics, Elementary Statistics, College Algebra, Intermediate Algebra, and Elementary Algebra.

### Teacher

1967 to 1973

Neshaminy School District, Langhorne, Pennsylvania

Taught Math, Science, Fine Arts, Graphic Arts, and Mechanical Drawing in grades 7-9.

## **CONSULTING EXPERIENCE**

### Measurement Consultant

2004 to 2005

Lidget Green, Mammoth Lakes, California

Psychometric consultant on the Minnesota TEAE test.

### Measurement Consultant

2003 to 2004, 2008

Ballard and Tighe, Brea, California

Member of the technical advisory committee for the development of the IPT plus examination.

### Measurement Consultant

2003 to 2004

University of Florida, Gainesville, Florida

Provided measurement services in the calibration and analysis of medical outcomes instruments under a grant from the Veteran's Administration.

- Measurement Consultant 2000  
Michigan Commission on Law Enforcement Standards, Lansing, Michigan  
Provided psychometric consulting on the calibration and equating of qualifying examinations.
- Measurement Consultant 1999 to 2001  
Brigham Young University, Provo, Utah  
Provided psychometric consulting on the development, calibration, and equating of institutional assessment instruments.
- Measurement Consultant 1995 to 1998  
American Board of Psychiatry and Neurology, Deerfield, Illinois  
Provided psychometric consulting on the calibration and equating of board certification examinations.
- Measurement Consultant 1993 to 1994  
American Board of Pathology, Tampa, Florida  
Provided psychometric consulting on the equating and computer adaptive administration of board certification examinations.
- Measurement Consultant 1993 to 1994  
National Assessment Institute, Clearwater, Florida  
Provided psychometric consulting on the equating and computer adaptive administration of licensure examinations.
- Measurement Consultant 1993  
National Board of Medical Examiners, Philadelphia, Pennsylvania  
Provided psychometric consulting on the analysis of the National Board examinations, including implementation of IPARM program.
- Measurement Consultant 1991 to 2007  
National Board of Examiners in Optometry, Washington, D.C.  
Provided psychometric consulting on the development, scoring, and reporting of the National Board examinations.
- Measurement Consultant 1990 to 1996  
New York Hospital - Cornell Medical Center, New York, New York  
Provided psychometric consulting on the development of three clinical assessment instruments in Occupational Therapy Department. These included an assessment for contextual memory, an assessment of dynamic visual processing, and a dysphasia evaluation questionnaire.
- Measurement Consultant 1990 to 1991  
Assessment Systems Incorporated, Philadelphia, Pennsylvania  
Developed procedures for test equating, item banking, standard setting, and item bias detection using the Rasch measurement model for computer administered testing systems in insurance and real estate licensure testing programs and allied health certification and licensure programs. Integrated item-banking system with computer test-generation system to allow production of pre-equated test forms. Converted ETS Real Estate and Insurance item banks, based on three-parameter model, to Rasch model item banking system. Trained staff in the use of these procedures and conducted seminars in measurement theory and practice. ASI is the largest real estate and insurance testing organization in the United States.

## **PUBLICATIONS**

- Smith, R.M., and Hedges, L.V. (1982). A comparison of likelihood ratio  $\chi^2$  and Pearsonian  $\chi^2$  tests of fit in the Rasch Model. *Educational Research and Perspectives*, 9, 44-54.
- Smith, R.M. (1985). Validation of individual test response patterns. *International Encyclopedia of Education*, Oxford: Pergamon Press, 5410-5413.
- Smith, R.M. (1985). A comparison of Rasch person analysis and robust estimators. *Educational and Psychological*

- Measurement*, 45, 433-444.
- Smith, R.M. (1986). Person fit in the Rasch Model. *Educational and Psychological Measurement*, 46, 359-372.
- Smith, R.M. (1987). Assessing partial knowledge in vocabulary. *Journal of Educational Measurement*, 24, 217-231.
- Green, K.E., and Smith, R.M. (1987). A comparison of two methods of decomposing item difficulties. *Journal of Educational Statistics*, 12, 369-381.
- Smith, R.M. (1988). The distributional properties of Rasch standardized residuals. *Educational and Psychological Measurement*, 48, 657-667.
- Smith, R.M., Kramer, G.A., and Kubiak, A.T. (1988). Using the Dental Admission Test Supplemental Score Report (Technical Report No. 1988-1). Chicago: American Dental Association.
- Smith, R.M., Kramer, G.A. and Kubiak, A.T. (1988). Revision of Dental Admission Test standard score scale. *Journal of Dental Education*, 52, 548-553.
- Kramer, G.A., Kubiak, A.T., and Smith, R.M. (1989). Construct and predictive validities of the perceptual ability test. *Journal of Dental Education*, 53, 119-125.
- Smith, R.M. and Kramer, G.A. (1989). Utilizing response pattern analysis in making admission decisions. *Rasch Measurement SIG Newsletter*, 2, 4.
- Smith, R.M., Kramer, G.A., and Kubiak, A.T. (1989). Gender differences in item performance and predictive validity of the DAT quantitative reasoning test. *Journal of Dental Education*, 53, 708-711.
- Smith, R.M. (1989). Dental Admission Testing Program: Variable Maps (Technical Report No. 1989-1). Chicago: American Dental Association.
- Smith, R.M. (1990). Optometry Admission Testing Program: Variable Maps (Technical Report No. 1990-1). Chicago: Optometry Admission Testing Program.
- Smith, R.M. (1990). Theory and practice of fit in Rasch measurement. *Rasch Measurement SIG Newsletter*, 3, 4.
- Smith, R.M., Kubiak, A.T., and Kramer, G.A. (1990). Frequency of measurement disturbances in the Dental Admission Test. *Journal of Dental Education*, 54, 314-318.
- Smith, R.M. (1991). The distributional properties of Rasch item fit statistics. *Educational and Psychological Measurement*, 51, 541-565.
- Smith, R.M. (1991). *IPARM: Item and person analysis with the Rasch model*. Chicago: MESA Press.
- Smith, R.M., Kramer, G.A., and Kubiak, A.T. (1992). Components of difficulty in spatial ability items. In M. Wilson (Ed.) *Objective measurement: Theory into practice I*. Norwood, NJ: Ablex Publishing Corp.
- Smith, R.M. and Kramer, G.A. (1992). A comparison of two methods of test equating in the Rasch model. *Educational and Psychological Measurement*, 52, 835-846.
- Smith, R.M. (1992). *Applications of Rasch measurement*. Chicago: MESA Press.
- Smith, R.M. (1993). Guessing and the Rasch model. *Rasch Measurement SIG Newsletter*, 6, 4.
- Smith, R.M. (1994). A comparison of the power of Rasch total and between item fit statistics to detect measurement disturbances. *Educational and Psychological Measurement*, 54, 42-55.
- Smith, R.M. (1994). Reporting candidate performance on computer adaptive tests. *Rasch Measurement SIG Newsletter*, 8, 1.
- Smith, R.M. (1994). Person maps for rating scales. *Rasch Measurement SIG Newsletter*, 8, 3.
- Smith, R.M., and Miao, C.Y. (1994). Assessing unidimensionality for Rasch measurement. In M. Wilson (Ed.) *Objective measurement: Theory into practice II*. Norwood, NJ: Ablex Publishing Corp.
- Smith, R.M. (1994). Detecting item bias in the Rasch rating scale model. *Educational and Psychological Measurement*, 54, 886-896.
- Smith, R.M., Lunz, M., Julian, E., Schulz, M., and Wright, B.D. (1994). Applications of conjoint measurement in admission and professional certification programs. *The International Journal of Educational Research*, 21, 653-664.

- Smith, R.M. (1996). A comparison of methods for determining dimensionality in Rasch measurement. *Structural Equation Modeling*, 3, 25-40.
- Smith, R.M. (1996). A comparison of the Rasch separate calibration and between fit methods of detecting item bias. *Educational and Psychological Measurement*, 56, 403-418.
- Smith, R.M. (1996). Item Component Equating. In M. Wilson and G. Engelhard (Eds.) *Objective measurement: Theory into practice III*. Norwood, NJ: Ablex Publishing Corp.
- Harvey, R.F., Smith, R.M., and Wright, R.E. (1996). The fundamentals of functional outcomes analysis. In B. O'Young, M. Young, and S. Stiens (Eds.) *PM&R secrets*. Philadelphia: Hanley and Belfus, Inc.
- Wright, R.E., Rao, N., Smith, R.M., and Harvey, R.F. (1996). Risk factors for death and emergency transfer in acute and subacute inpatient rehabilitation. *Archives of Physical Medicine and Rehabilitation*, 77, 1049-1055.
- Banerji, M., Smith, R.M., and Dedrick, R. (1997). Examining dimensionality of data from an early childhood scale using Rasch analysis and confirmatory factor analysis. *Journal of Outcome Measurement*, 1, 56-85.
- Smith, R.M., and Gross, L.J. (1997). Validating standard setting with a modified Nedelsky procedure through common item equating. *Journal of Outcome Measurement*, 1, 164-172.
- Smith, R.M. (1997). Pre-Post Comparisons in Rasch Measurement. In M. Wilson, G. Engelhard, and K. Draney (Eds.) *Objective measurement: Theory into practice IV*. Greenwich, CN: Ablex Publishing Corp.
- Smith, R.M. (1997). The relationship between goals and functional status in PECS<sup>®</sup>. In R.M. Smith (Ed.) *Outcome measurement: Physical Medicine and Rehabilitation State of the Art Reviews*, 11 (2). Philadelphia: Hanley & Belfus, Inc.
- Smith, R.M., Schumacker, R.E., and Bush, M.J. (1998). Using item mean squares to evaluate fit to the Rasch model. *Journal of Outcome Measurement*, 2, 66-78.
- Smith, R.M. (1998). Corrected Rasch asymptotic standard errors for person ability estimates. *Journal of Outcome Measurement*, 2, 350-362.
- Bainer, D.L., and Smith, R.M. (1999). Refining an instrument to measure the effectiveness of school-based partnerships. *Journal of Outcome Measurement*, 3, 248-265.
- Smith, R.M., Heinemann, A.W., Granger, C.V., Ottenbacher, K.J., and Deutsch, A. (1999). Monitoring quality of rehabilitation care through outcomes. In N. Goldfield and D. Nash (Eds.) *Managing Quality of Care in a Cost-Focused Environment*. Tampa, Florida: American College of Physicians/Aspen Publications.
- Smith, R.M., Schumacker, R.E., and Bush, J. (2000). Examining replication effects on Rasch fit statistics. In M. Wilson, and G. Engelhard, Jr. (Eds.) *Objective measurement: Theory into practice V*. Stamford, CN: Ablex Publishing Corp.
- Smith, R.M. (2000). Fit analysis in latent trait models. *Journal of Applied Measurement*, 1, 199-218.
- Kramer, G.A., and Smith, R.M. (2001). An investigation of gender differences in the components influencing the difficulty of spatial ability items. *Journal of Applied Measurement*, 2, 67-79.
- Kelly, B.M., Rao, N., Louis, S.S., Kostas, B.T., and Smith, R.M. (2001). Bilateral simultaneous rupture of quadriceps tendons without trauma in an obese patient: A case report. *Archives of Physical Medicine and Rehabilitation*, 82, 415-418.
- Betemps, E.J., Smith, R.M., Baker, D.G., and Rounds-Kugler, R.A. (2003). Measurement Precision of the Clinician Administered PTSD Scale (CAPS): A Rasch Model Analysis. *Journal of Applied Measurement*, 4, 59-69.
- Smith, R.M., and Suh, K.K. (2003). Rasch fit statistics as a direct test of the invariance of parameter estimation. *Journal of Applied Measurement*, 4, 153-163.
- Smith, R.M., and Taylor, P.A. (2004). Equating rehabilitation outcome scales: Developing common metrics. *Journal of Applied Measurement*, 5, 229-242.
- Smith, E.V., Jr., and Smith, R.M. (Eds.) (2004). *Introduction to Rasch measurement*. Maple Grove, MN: JAM Press.
- Smith, R.M. (2004). Detecting item bias with the Rasch model. *Journal of Applied Measurement*, 5, 430-449.
- Dimitrov, D.M., and Smith, R.M. (2006). Adjusted Rasch Person-fit Statistics. *Journal of Applied Measurement*, 7,

170-183.

- Smith, E.V., Jr., and Smith, R.M. (Eds.) (2007). *Rasch measurement: Advanced and specialized applications*. Maple Grove, MN: JAM Press.
- Iramaneerat, C., Smith, E.V., Jr., and Smith, R.M. (Eds.) (2008). An Introduction to Rasch measurement. In J. W. Osborne (Ed.), *Best practices in quantitative methods* (pp. 50-70). Thousand Oaks, CA: Sage.
- Stearns, M., and Smith, R.M. (2008). Estimation of decision consistency indices for complex assessments: Model based approaches. *Journal of Applied Measurement*, 9, 305-315.
- Smith, R.M., and Plackner, C. (2009). The family approach to assessing fit in Rasch measurement. *Journal of Applied Measurement*, 10, 424-437.

## PAPERS

- Smith, R.M. and Mitchell, V.P. (1979). Improving the predictive validity of placement tests using the Rasch model for scoring. National Council on Measurement in Education, San Francisco.
- Smith, R.M. and Mitchell, V.P. (1980). An analysis of Rasch person fit statistics in college placement tests. National Council on Measurement in Education, Boston.
- Mitchell, V.P. and Smith, R.M. (1980). Determining cut-off scores using Rasch ability estimates. National Council on Measurement in Education, Boston.
- Smith, R.M. (1981). An analysis of the individual effects of sex bias. National Council on Measurement in Education, Los Angeles.
- Smith, R.M. (1981). The assessment of partial knowledge: The use of the CREDIT model in scoring multiple-choice items. American Educational Research Association, Los Angeles.
- Smith, R.M. and Hedges, L.V. (1982). A comparison of likelihood ratio  $\chi^2$  and Pearsonian  $\chi^2$  tests of fit in the Rasch model. American Educational Research Association, New York.
- Percy, V.R. and Smith, R.M. (1982). The use of Rasch ability estimates for English and mathematics placement. National Council on Measurement in Education, New York.
- Smith, R.M. (1982). Methods of assessing the fit of persons to the Rasch model. National Council on Measurement in Education, New York.
- Smith, R.M. (1982). A model for evaluating the assessment of partial knowledge. National Council on Measurement in Education, New York.
- Smith, R.M. (1983). A comparison of Rasch person analysis and robust estimators. American Educational Research Association, Montreal.
- Smith, R.M. (1983). Test fairness is a personal issue! National Council on Measurement in Education, Montreal.
- Smith, R.M. (1984). An analysis of the content of mathematics items that evoke differential performance. American Educational Research Association, New Orleans.
- Smith, R.M. and Huntley, R.M. (1984). Can multiple choice items assess partial knowledge? National Council on Measurement in Education, New Orleans.
- Smith, R.M. and Green, K.E. (1984). A comparison of methods for decomposing item difficulties. Northern Rocky Mountain Educational Research Association, Jackson, WY.
- Smith, R.M. and Green, K.E. (1985). Components of difficulty in paper folding tests. American Educational Research Association, Chicago.
- Smith, R.M. (1985). Assessing partial knowledge in vocabulary. National Council on Measurement in Education, Chicago.
- Smith, R.M. (1985). Developing objective math tests. American Educational Research Association, Chicago.
- Smith, R.M. (1985). Assessing partial knowledge. Third International Objective Measurement Workshop, Chicago.
- Smith, R.M. and Green, K.E. (1986). Attitude scale construction using traditional and Rasch methods. American

- Educational Research Association, San Francisco.
- Smith, R.M. (1986). Developing multiple-choice items to fit a polychotomous scoring model. National Council on Measurement in Education, San Francisco.
- Smith, R.M. and Wright B.D. (1987). A new method of testing person fit in the Rasch model. American Educational Research Association, Washington, D.C.
- Smith, R.M. (1987). The distributional properties of Rasch item fit statistics. National Council on Measurement in Education, Washington, D.C.
- Smith, R.M. (1987). The distributional properties of Rasch standardized residuals. American Educational Research Association, Washington, D.C.
- Smith, R.M. (1987). Analysis of sex differences in undergraduate and graduate admissions mathematics tests. Fourth International Objective Measurement Workshop, Chicago.
- Smith, R.M. (1987). Measuring Spatial Ability. Mid-west Objective Measurement Seminar, Chicago.
- Smith, R.M. (1988). A comparison of the power of Rasch total and between item fit statistics to detect measurement disturbances. American Educational Research Association, New Orleans.
- Smith, R.M. (1988). Differential item familiarity in graduate admissions mathematics tests. National Council on Measurement in Education, New Orleans.
- Smith, R.M. and Kramer, G.A. (1988). A comparison of two methods of test equating in the Rasch model. American Educational Research Association, New Orleans.
- Smith, R.M. and Kramer, G.A. (1988). A component analysis of the factors influencing the difficulty of perceptual ability items. National Council on Measurement in Education, New Orleans.
- Smith, R.M., Kramer, G.A., and Kubiak, A.T. (1989). Components of difficulty in spatial ability items. Fifth International Objective Measurement Workshop, Berkeley.
- Smith, R.M. (1989). Item and person fit in the Rasch model. American Educational Research Association, San Francisco.
- Smith, R.M., Kubiak, A.T., and Kramer, G.A. (1989). Incidence of inconsistent person response patterns in graduate admission mathematics tests. American Educational Research Association, San Francisco.
- Smith, R.M., Kubiak, A.T., and Kramer, G.A. (1989). Differential item performance and predictive validity in graduate admission mathematics tests. National Council on Measurement in Education, San Francisco.
- Kramer, G.A., Smith, R.M., and Kubiak, A.T. (1989). A cross validation of components influencing the difficulty of cube items. National Council on Measurement in Education, San Francisco.
- Smith, R.M., Miao, C.Y., and Kramer, G.A. (1990). An analysis of factors influencing the predictive validity of the perceptual ability test. American Educational Research Association, Boston.
- Kramer, G.A. and Smith, R.M. (1990). An investigation of components influencing the difficulty of form development items. National Council on Measurement in Education, Boston.
- Smith, R.M. (1990). Recovering pseudo-item banks. Mid-west Objective Measurement Seminar, December, Chicago.
- Smith, R.M. and Miao, C.Y. (1991). Assessing unidimensionality for Rasch measurement. American Educational Research Association, Chicago.
- Smith, R.M. and Kramer, G.A. (1991). An investigation of sex differences in components influencing the difficulty of spatial ability items. American Educational Research Association, Chicago.
- Smith, R.M., Kramer, G.A., and Kubiak, A.T. (1992). A confirmatory analysis of factors influencing the difficulty of paper folding items. American Educational Research Association, San Francisco.
- Smith, R.M. (1992). Understanding individual test-taking behavior. American Educational Research Association, San Francisco.
- Smith, R.M. (1992). The use of item component difficulties to equate test forms in the Rasch model. National Council on Measurement in Education, San Francisco.



- Smith, R.M. (1992). Assessing unidimensionality for the Rasch rating scale model. American Educational Research Association, San Francisco.
- Smith, R.M. (1992). Detecting item bias in Rasch measurement models. Mid-west Objective Measurement Seminar, May, Chicago.
- Smith, R.M. (1992). Graduate measurement courses: Do they change attitudes towards testing. Florida Educational Research Association, November, Orlando.
- Smith, R.M. (1993). Detecting item bias in the Rasch rating scale model. American Educational Research Association, Atlanta.
- Smith, R.M. (1993). A comparison of the Rasch separate calibration and between fit methods of detecting item bias. American Educational Research Association, Atlanta.
- Smith, R.M. (1993). Test equating using item component difficulties: A practical example. National Council on Measurement in Education, Atlanta.
- Parshall, C., Smith, R.M., and Kromrey, J. (1993). Rasch DIF detection: Stability of performance over differing numbers of replications. American Educational Research Association, Atlanta.
- Kramer, G.A. and Smith, R.M. (1993). A confirmatory analysis of factors influencing the difficulty of form-development items. American Educational Research Association, Atlanta.
- Smith, R.M. (1993). Item component equating. Seventh International Objective Measurement Workshop, Atlanta.
- Banerji, M., Smith, R.M., and Dedrick, R. (1993). Examining dimensionality of data from an early childhood scale using Rasch analysis and confirmatory factor analysis. Florida Educational Research Association, November, Destin. FERA Distinguished Paper Award.
- Smith, R.M. (1994). Pre-post comparisons in Rasch measurement. American Educational Research Association, New Orleans.
- Wilk, R.E. and Smith, R.M. (1994). Using the Rasch FACETS model to interpret class evaluations: A problem in connectivity. American Educational Research Association, New Orleans.
- Schumacker, R.E., Smith, R.M., and Bush, J. (1994). Examining replication effects on Rasch fit statistics. American Educational Research Association, New Orleans.
- Smith, R.M. (1994). A comparison of methods for determining dimensionality in Rasch measurement. Mid-Western Educational Research Association, October, Chicago.
- Smith, R.M. (1994). Graphical reporting of rating scale and partial credit response patterns. Mid-west Objective Measurement Seminar, December, Chicago.
- Smith, R.M., Schumacker, R.E., and Bush, J. (1995). Using item mean squares to evaluate fit to the Rasch model. American Educational Research Association, San Francisco.
- Smith, R.M. and Gross, L.J. (1995). Validating standard setting with a modified Nedelsky procedure through common item equating. American Educational Research Association, San Francisco.
- Smith, R.M. (1995). The effects of guessing on observed standard errors. Mid-west Objective Measurement Seminar, June, Chicago.
- Smith, R.M. (1995). Using LifeScales™ to assess levels of disability. Mid-Western Educational Research Association, October, Chicago.
- Fuss, K.J. and Smith, R.M. (1995). Application of Rasch analysis to patient satisfaction surveys. Mid-Western Educational Research Association, October, Chicago.
- Rao, N., Wright, R.E., Smith, R.M., and Harvey, R.F. (1995). Relationship between medical severity and the incidence of death and emergency transfer in acute and subacute rehabilitation. American Academy of Physical Medicine and Rehabilitation, November, Orlando.
- Oken, J.E., Wright, R.E., Smith, R.M., and Harvey, R.F. (1995). Functional gains for patients who use multiple levels of care. American Academy of Physical Medicine and Rehabilitation, November, Orlando.
- Gruft, J.H., Wright, R.E., Smith, R.M., and Harvey, R.F. (1995). Prediction of functional restoration for pain program

- outpatients with work-related injuries. American Academy of Physical Medicine and Rehabilitation, November, Orlando
- Chaudhuri, G. Hutchins, B.F., Wright, R.E., and Smith, R.M. (1995). Outcomes for stroke patients by levels of care. American Academy of Physical Medicine and Rehabilitation, November, Orlando
- Oken, J.E., Wright, R.E., Smith, R.M., Harvey, R.F., and Rao, N. (1995). Emergency transfers in a subacute rehabilitation program: Frequency and causes. American Academy of Physical Medicine and Rehabilitation, November, Orlando.
- Smith, R.M. and Wilk, R.E. (1996). Evaluating group differences in unconnected data with FACETS. American Educational Research Association, New York.
- Smith, R.M. (1996). Corrected Rasch asymptotic standard errors for person ability estimates. National Council on Measurement in Education, New York.
- Smith, R.M. (1996). Relative Fit. Mid-west Objective Measurement Seminar, May, Chicago.
- Fuss, K.J. and Smith, R.M. (1996). Alternative scoring methods for patient management problems. Mid-Western Educational Research Association, October, Chicago.
- Smith, R.M., McCarron, E., Fisher, W.F., and Harvey, R.F. (1996). Development of a linear scale to measure physical impairment. American Academy of Physical Medicine and Rehabilitation, October, Chicago.
- Smith, R.M., Wright, R.E., and Harvey, R.F. (1996). Developing linear scales to measure goals of rehabilitation. American Academy of Physical Medicine and Rehabilitation, October, Chicago.
- Rao, N., Taylor, P.A., Smith, R.M., and Wright, R.E. (1996). Functional outcome gains as a function of costs for day rehabilitation programs. American Academy of Physical Medicine and Rehabilitation, October, Chicago.
- Rao, N., Pasimio, E., and Smith, R.M. (1996). The relationship of balance and cognition impairment to mobility and self-care in stroke patients. American Academy of Physical Medicine and Rehabilitation, October, Chicago.
- Wright, R.E., Aliga, N.A., Smith, R.M., and Harvey, R.F. (1996). Multivariate profile analysis of rehabilitation service delivery patterns. American Academy of Physical Medicine and Rehabilitation, October, Chicago.
- Wright, R.E., Smith, R.M., and Harvey, R.F. (1996). Development and validation of a statistical model to predict the cost of acute inpatient rehabilitation. American Academy of Physical Medicine and Rehabilitation, October, Chicago.
- Smith, R.M. and Fuss, K.J. (1996). Common person equating in program evaluation. Mid-west Objective Measurement Seminar, December, Chicago.
- Smith, R.M., Wright, R.E., and Fuss, K.J. (1997). Using person fit statistics to improve prediction of functional outcomes. American Educational Research Association, Chicago.
- Smith, R.M. (1997). When less is more. Mid-west Objective Measurement Seminar, June, Chicago.
- Rao, N., Pasimio, E., Smith, R.M., Schneider, D.A., and Saripalli, S. (1997). Functional balance in patients with deep white matter lesions (leukoaraiosis). American Academy of Physical Medicine and Rehabilitation, November, Atlanta.
- McCarron, E., Smith, R.M., and Harvey, R.F. (1997). The utility of the PECS<sup>®</sup> Medical Severity LifeScale in predicting functional outcomes, emergency medical transfers, length of stay, and discharge disposition. American Academy of Physical Medicine and Rehabilitation, November, Atlanta.
- Saripalli, S., Chaudhuri, G., Smith, R.M., and Pasimio, E. (1997). Alpha adrenergic blockade effectiveness in bladder management of the rehabilitation population. American Academy of Physical Medicine and Rehabilitation, November, Atlanta.
- Miky, M.A., Chaudhuri, G., and Smith, R.M. (1997). Incidence of falls in inpatient acute rehabilitation. Poster presented at American Academy of Physical Medicine and Rehabilitation, November, Atlanta.
- Smith, R.M. (1997). Using Rasch variable maps in program evaluation. Mid-west Objective Measurement Seminar, December, Chicago.
- Bainer, D.L. and Smith R.M. (1998). Refining an instrument to measure the effectiveness of school-based partnerships. American Educational Research Association, San Diego.

- Smith, R.M. (1998). Co-calibrating functional outcome scales. Mid-west Objective Measurement Seminar, June, Chicago.
- Smith, R.M. (1998). Analyzing ordered response survey data. Mid-Western Educational Research Association, October, Chicago.
- Oken, J.E. and Smith, R.M. (1998). Functional outcomes in acute versus subacute rehabilitation. American Academy of Physical Medicine and Rehabilitation, November, Seattle.
- Smith, R.M., McCarron, E., Fisher, W.P., and Harvey, R.F. (1998). Development of a linear scale to measure associated medical problems. American Congress of Rehabilitation Medicine, Seattle.
- Smith, R.M., Wright, R.E., and Harvey, R.F. (1998). Using goal attainment to evaluate the effectiveness of treatment programs. American Congress of Rehabilitation Medicine, Seattle.
- Smith, R.M. and McCarron, E. (1998). The effect of rehabilitation programs on the dimensionality of outcome measurement. American Congress of Rehabilitation Medicine, Seattle.
- Smith, R.M. (1998). Ordered response category analysis: A best practice model. Mid-west Objective Measurement Seminar, December, Chicago.
- Smith, R.M. (1999). Corrected Rasch asymptotic standard errors for item difficulty estimates. American Educational Research Association, Montreal.
- Miky, M.A., Rao, N., and Smith, R.M. (1999). Rehabilitation outcomes as a function of discharge destination. Poster presented at American Society of Neurorehabilitation, April, Toronto.
- Miky, M.A., Rao, N., Steiner, M., and Smith, R.M. (1999). Functional outcomes for dysphasia and non-dysphasia rehabilitation patients. Poster presented at American Society of Neurorehabilitation, April, Toronto.
- Smith, R.M. (1999). Using outcome measurement scales in program evaluation. European Congress of Physical Medicine and Rehabilitation, May, Göteborg, Sweden.
- Smith, R.M. (1999). Using outcome measurement scales in program evaluation. Mid-west Objective Measurement Seminar, June, Chicago.
- Chaudhuri, S., Aliga, N., and Smith, R.M. (1999). Fever workup in orthopedic rehabilitation. Poster presented at American Congress of Rehabilitation Medicine, October, Orlando.
- Smith, R.M. and Taylor, P.A. (1999). Developing a common cognitive scale for PECS and FIM. American Congress of Rehabilitation Medicine, October, Orlando.
- Smith, R.M. and Cook, K. (1999). Measurement properties of Visual Analog Scales. American Congress of Rehabilitation Medicine, October, Orlando.
- Chaudhuri, S., Chaudhuri, G., and Smith, R.M. (1999). TPA vs. intravenous heparin: Measuring rehabilitation outcomes. American Academy of Physical Medicine and Rehabilitation, November, Washington, DC.
- Subbarao, J.V., Smith, R.M., and Surdyk, P.M. (1999). Strengths and weakness in residency training: Resident's perception verses performance measured by Self-Assessment examination and resident survey. American Academy of Physical Medicine and Rehabilitation, November, Washington, DC.
- Kelly, B.M., Rao, N., Louis, S.S., Kostas, B.T. and Smith, R.M. (1999). Bilateral simultaneous rupture of quadriceps tendon in an obese patient without trauma. Poster presented at American Academy of Physical Medicine and Rehabilitation, November, Washington, DC.
- Miky, M., Keen, M.E., and Smith, R.M. (1999). Case report on spasticity and Zanaflex. Poster presented at American Academy of Physical Medicine and Rehabilitation, November, Washington, DC.
- Subbarao, J.V. and Smith, R.M. (1999). Prevalence of utilization management in PM&R. Poster presented at American Academy of Physical Medicine and Rehabilitation, November, Washington, DC.
- Chaudhuri, S., Chaudhuri, G., and Smith, R.M. (1999). Tissue plasminogen activator versus intravenous heparin: Measuring rehabilitation outcome. Poster presented at American Academy of Physical Medicine and Rehabilitation, November, Washington, DC.
- Smith, R.M. and Smith, E.B. (2000). A comparison of methods for assessing unidimensionality in Rasch measurement. Tenth International Objective Measurement Workshop, April, New Orleans.

- Smith, R.M. and Taylor, P.A. (2000). *Quality of Life: Assessing the psychometric properties of the SF-36*. American Public Health Association, November, Boston.
- Taylor, P.A. and Smith, R.M. (2000). *Quality of Life: Administrative and methodological pitfalls*. American Public Health Association, November, Boston.
- Smith, R.M. (2001). *Psychometric issues in standard setting with simulated patients*. American Educational Research Association, Seattle.
- Smith, R.M. (2002). *The family approach to assessing fit in Rasch measurement*. Eleventh International Objective Measurement Workshop, April, New Orleans.
- Smith, R.M. and Suh, K.K. (2002). *Rasch fit statistics as a direct test of the invariance of parameter estimation*. Eleventh International Objective Measurement Workshop, April, New Orleans.
- Curtin, J.A., Sudweeks, R.R., and Smith, R.M. (2003). *Analyzing DIF for polytomous responses of university alumni to a follow-up questionnaire*. American Educational Research Association, April, Chicago.
- Smith, R.M. and Mead, R.J. (2003). *The family approach to assessing fit in Rasch measurement*. Festschrift in honor of Ben Wright, April, Chicago.
- Dimitrov, D.M., and Smith, R.M. (2004). *Adjusted Rasch person fit statistics*. American Educational Research Association, April, San Diego.
- Smith, R.M. (2004). *Assessing the fit of data to the family of Rasch measurement models: Interpreting residual-based fit statistics*. Twelfth International Objective Measurement Workshop, July, Cairns, Australia.
- Ewing, C.S., Chatterji, M., and Smith, R.M. (2005). *Designing and validating measures of teachers attitude towards inclusive education (TATIE) using an iterative process model*. American Educational Research Association, April, Montreal.
- Stearns, M., and Smith, R.M. (2006). *On the estimation of classification consistency indices for complex assessments*. Thirteenth International Objective Measurement Workshop, April, Berkeley, CA.
- Butterbaugh, D.J., Smith, R.M., and Maurelli, V.A. (2006). *Examining Type I and Type II error rates in small sample DIF statistics*. Thirteenth International Objective Measurement Workshop, April, Berkeley, CA.
- Stearns, M., and Smith, R.M. (2007). *On the estimation of classification consistency indices for complex assessments*. American Educational Research Association, April, Chicago.
- Smith, R.M. (2010). *How do residuals work: Understanding fit*. Fifteenth International Objective Measurement Workshop, April, Boulder, CO.
- Smith, R.M., and Andersen, K. (2012). *Using residual analysis of large-scale assessments to inform instruction and curriculum*. South Carolina Educators for the Practical Use of Research Annual Conference, February, Columbia, SC.
- Smith, R.M., Thalberg, J., Andersen, K., and Sorensen, B. (2012). *Comparing linking procedures in Rasch measurement*. Sixteenth International Objective Measurement Workshop, April, Vancouver, BC, Canada.
- Smith, R.M., and Andersen, K. (2012). *Using residual analysis of large-scale assessments to inform instruction and curriculum (Keynote Address)*. Ohio River Valley Objective Measurement Seminar, May, Lexington, KY.
- Smith, R.M., Andersen, K., Olsen, D., DiStefano, C., Saunders, J.C., and Rao, V. (2013). *Using residual analysis to inform instructional and curriculum decisions: An application with PASS data*. South Carolina Educators for the Practical Use of Research Annual Conference, February, Columbia, SC.
- Smith, R.M., and Andersen, K. (2014). *Using residual analysis of large-scale assessments to inform instruction and curriculum (Keynote Address)*. Assessment Conference 2014, Hong Kong Institute for Education. January, Hong Kong.
- Smith, R.M., Andersen, K., McKenna, L., DiStefano, C., and Saunders, J.C. (2014). *Standards-based report cards for students*. South Carolina Educators for the Practical Use of Research Annual Conference, February, Columbia, SC.
- Smith, R.M., Andersen, K., McKenna, L., DiStefano, C., and Saunders, J.C. (2014). *Standards-based report cards for students*. Ohio River Valley Objective Measurement Seminar, May, Cincinnati, OH.

- Smith, R.M., Andersen, K., McKenna, L., DiStefano, C., and Saunders, J.C. (2014). Standards-based report cards for students. 11th Cross-Straits Conference on Educational and Psychological Testing, August, Taichung, Taiwan.
- Smith, R.M., McKenna, L., and Plackner, C. (2015). A comparison of information available in various measurement models. IOMC 2015, April, Chicago, IL.
- Smith, R.M. and McKenna, L. (2016). Applications of the latest developments in Rasch measurement to enhance teaching and learning. South Carolina Educators for the Practical Use of Research Annual Conference, February, Columbia, SC.
- Smith, R.M., McKenna, L., and Plackner, C. (2017). Deconstructing the question of the fit of data to measurement models. IOMC 2017, September, Chicago, IL.
- Smith, R.M., McKenna, L., and Plackner, C. (2018). Deconstructing the question of the fit of data to measurement models. South Carolina Educators for the Practical Use of Research Annual Conference, March, Columbia, SC.

## **WORKSHOPS AND PRESENTATIONS**

- Georg Rasch and the NJCBSPT: A Rasch model workshop for members of the New Jersey College Basic Skills Council and its sub-committees, October 1979.
- Rasch model: Person analysis for detecting individual misfit. AERA Rasch Measurement Training Session, San Francisco, 1979 and Boston, 1980.
- The Rasch model for analyzing placement data. Basic Skills Across the Curriculum: Northeast Regional Conference, January 1980.
- Assessing the quality of measures and Weighting multiple-choice items. Rasch analysis workshop sponsored by IOX, Chicago, June 1981.
- Validating individual response patterns. Second Objective Measurement Workshop, University of Western Australia, Perth, WA, Australia, August 1982
- Director, Applied measurement: Applications of the Rasch model. AERA Training Session, New Orleans, 1984.
- Co-director, Managing basic problems of test development, administration, scoring, and reporting. AERA Training Session, Chicago, 1985.
- Director, Rasch measurement in educational assessment. Mid-Western Educational Research Association Training Session, Chicago, October 1985.
- Co-director, Item response theory: Principles and applications of the Rasch model. Two-day Faculty Research Retreat, The Ohio State University, February 1986.
- Director, Rasch measurement workshop. One-day faculty workshop, Miami-Dade Community College, March, 1986.
- Director, Applications of the Rasch model in medical education. One-day staff and faculty workshop, College of Medicine, The Ohio State University, July 1986.
- Co-director, Applications of the Rasch model. Mid-Western Educational Research Association Training Session, Chicago, October, 1986.
- Director, Applications of the Rasch model. AERA Training Session, Washington D.C., 1987.
- Co-director, Introduction to and applications of the Rasch model. Northern Rocky Mountain Educational Research Association workshop, Park City, Utah, October 1987.
- Director, Introduction to the Rasch model. Michigan Educational Research Association workshop, Novi, Michigan, January 1988.
- Director, DAT Supplemental Score Report Workshop, American Dental Association, July 1988.
- Interpreting OAT Supplemental Score Reports. Presentation at the winter meeting of the admissions officers of the Association of Schools and Colleges of Optometry, Toronto, January 1989.
- Director, CDAT Supplemental Score Report Workshop, Canadian Dental Association, February 1989.

Interpreting DAT Supplemental Score Reports. Presentation at the annual meeting of the American Association of Dental Schools, San Francisco, March 1989.

Co-director, Rasch Measurement. AERA Extended Course, San Francisco, 1989.

Co-director, Applications of Rasch measurement in dental education. One-day staff and faculty workshop, Baylor College of Dentistry, August 1989.

Director, Using and interpreting the modified Dental Admission Test. One-day workshop at the annual meeting of the American Association of Dental Schools, Cincinnati, March 1990.

Director, Item and person analysis with the Rasch model. Mid-Western Educational Research Association Training Session, Chicago, October 1993.

Measurement issues in outcomes research. Presentation at Managed Care Contracting: Outcome Research and Patient Management Conference, Oak Brook, IL, December 1994.

Outcome measurement in the outpatient setting. Presentation at Outpatient Rehabilitation Programs: New Concepts and Trends Conference, Lisle, IL, August 1995.

Director, Critical Evaluation and Review of Literature: Discussion and Workshop. Resident and attending physician workshop, Edward Hines, Jr. VA Hospital, Maywood, IL, September 1995.

Director, Simulation studies in Rasch measurement. Mid-Western Educational Research Association Training Session, Chicago, October 1995.

The relationship between goals and functional status in PECS<sup>®</sup>. Presentation at First International Outcome Measurement Conference, Chicago, IL, May 1996. Also conference organizer.

Outcome measurement in outpatient rehabilitation services. Presentation at AHA Conference on Orthopedics, Neuroscience, and Rehabilitation Services, San Diego, Ca., June 1996.

Relative fit. Presentation at Ninth International Objective Measurement Workshop, Chicago, IL, March 1997.

Graphical guides for communicating rating scale assessments. Presentation at Ninth International Objective Measurement Workshop, Chicago, March 1997.

Using self-scoring maps in functional assessment. Presentation included in Progress in Rehabilitation Outcomes Measurement, four-hour course at the Annual Meeting of the American Congress of Rehabilitation Medicine, Boston, Mass., September 1997. Also course organizer.

Director, Applications of Rasch measurement. Mid-Western Educational Research Association Training Session, Chicago, October 1997.

Director, Critical Evaluation and Review of Literature: Workshop and Discussion. Marianjoy Rehabilitation Hospital and Clinics Quarterly Staff Meeting, Wheaton, IL, October 1997.

Dimensionality and fit. Presentation at International Latent Trait Theory: Rasch Measurement Conference, University of Western Australia, Perth, January 1998.

PECS<sup>®</sup> - FIM<sup>™</sup> equating. Presentation at Second International Outcome Measurement Conference, Chicago, May 1998. Also conference organizer.

Director, Critical evaluation and review of literature: Workshop and discussion. A Continuing Education Workshop in 3 one hour sessions. Marianjoy Rehabilitation Hospital and Clinics, Wheaton, Illinois, September 1998.

Director, Introduction to Rasch measurement: Theory and applications. American Educational Research Association Training Session (two days), Montreal, April 1999.

Introduction to Rasch Measurement. Three-hour presentation for staff at Sahlgrenska Rehabilitation Hospital, Göteborg, Sweden, May 1999.

Rasch measurement in the social sciences. Presentation to the Education and Psychology faculty at James Cook University, Townsville, Australia, September 1999.

Introduction to Rasch measurement. Two-day workshop presented at the School of Education, Macquarie University, Sydney, Australia, September 1999.

Introduction to Rasch measurement. One and one-half day workshop presented for the Office of Institutional

Assessment and School of Education, Brigham Young University, Provo, Utah, November 1999.

Director, Introduction to Rasch measurement: Theory and applications. Rehabilitation Institute of Chicago Training Session (two days), Chicago, June 2000.

Rasch measurement for institutional assessment. One and one-half day workshop presented for the Office of Institutional Assessment and School of Education, Brigham Young University, Provo, Utah, December 2000.

Co-director, Introduction to Rasch measurement: Theory and applications. American Educational Research Association Training Session (two days), Seattle, April 2001.

Ordered response category analysis: A best practice model. Presentation at Rasch Symposium, Copenhagen Business School, Copenhagen, Denmark, September 2001.

Co-director, Introduction to Rasch measurement: Theory and applications. International Objective Measurement Conference pre-session (two days), Chicago, October 2001.

Director, Developing, analyzing, and interpreting outcome scales with Rasch measurement. American Public Health Association Continuing Education Institute, Atlanta, October 2001.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, April 2003.

A consumer's guide to fit statistics. Presentation at COMET Meeting, University of Illinois - Chicago, Chicago, February 2004.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, November 2004.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Montreal, April 2005.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, November 2005.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), San Francisco, April 2006.

The Ties that Bind. Presentation at business meeting of the Rasch Measurement SIG at the annual meeting of the American Educational Research Association, San Francisco, April 2006.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Columbia University, New York City, July 2006.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, October 2006.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, April 2007.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, October 2007.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), New York, March 2008.

Organizer, Fourteenth International Objective Measurement Workshop - IOMW 2008. Rasch measurement conference held at New York University, March 22 & 23, 2008.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, October 2008.

Using item and standard-level residuals to inform instruction. Presentation at ADEED Winter Education Conference, Anchorage, AK, January 2010.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Maple Grove, MN, October 2010.

Using item and standard-level residuals to inform curriculum development and instruction. Presentation at ADEED Curriculum and Alignment Institute, Anchorage, AK, November 2010.

Using item and standard-level residuals to inform curriculum development and instruction: Depth of knowledge and cognitive level. Presentation at ADEED Curriculum and Alignment Institute Conference, Anchorage, AK, March 2011.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Maple Grove, MN, October 2011.

Director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (one day), Lexington, KY, May 2012.

Co-director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), Chicago, November 2012.

Director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), San Francisco, CA, April 2013.

Director, Independent study in Rasch measurement. Rasch measurement course (four days) for Washington University, St. Louis, MO, July 2013.

Director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (three days), Maple Grove, MN, October 2013.

Director, Introduction to Rasch measurement: Theory and applications. Rasch measurement training-session (two days), HKIE, Hong Kong, January 2014.

Organizer, Fourth International Outcome Measurement Conference - IOMC 2015. Rasch outcomes measurement conference held in Chicago, April 21 & 22, 2015.

Applications of the latest developments in Rasch measurement for the enhancement of teaching and learning. Presentation at Conference on “Diverse Assessment – Promoting Success in Student Learning”, Education and Youth Bureau, Macao, China, November 2015.

Applications of the latest developments in Rasch measurement to enhance teaching and learning. Presentation at Assessment Research Centre, Hong Kong Institute of Education, Hong Kong, November 2015.

Organizer, Fifth International Outcome Measurement Conference - IOMC 2017. Rasch outcomes measurement conference held in Chicago, September 15 & 16, 2017.

#### **Pd. D. THESIS COMMITTEE MEMBER**

Elizabeth Nielson – Brigham Young University, 2002  
Joseph Curtin – Brigham Young University, 2007

#### **Pd. D. THESIS EXAMINER**

University of Western Australia: 2000, 2001  
University of New South Wales: 1999, 2000, 2003, 2006  
Murdoch University: 2000

#### **PROPOSAL/ JOURNAL REVIEWS**

American Educational Research Association, Division D:  
1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1996, 1998, 1999

American Educational Research Association, Rasch Measurement SIG:  
1991, 1992, 1993, 1994

American Educational Research Association, Division C: 1997

National Council on Measurement in Education:  
1984, 1986, 1987, 1988, 1989, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2004

Florida Educational Research Association: 1991, 1992

Journal of Educational Measurement: 1988, 1990, 2002, 2003

Journal of Educational Statistics: 1989



Educational and Psychological Measurement: 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001  
Archives of Physical Medicine and Rehabilitation: 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2004, 2005  
Statistics in Medicine: 2000  
Psychological Methods: 2003, 2007

## **AFFILIATIONS**

Journal of Applied Measurement

Founding Editor and Publisher 2000 to present – Currently publishing Vol. 19

Currently indexed in *Index Medicus*, MEDLINE, Psych INFO, and *Current Index to Journals in Education*

JAM Press

Founder and Publisher 2002 to present

Publish books and monographs relating to Rasch measurement

Published books include: *Introduction to Rasch Measurement* (2004, reprinted 2006, 2011, 2014)

*Rasch Measurement in Health Sciences* (2005)

*Value Added Models in Education: Theory and Applications* (2005)

*Longitudinal and Value-added Modeling of Student Performance* (2006)

*Applications of Rasch Measurement in Science Education* (2006)

*Rasch Measurement: Advanced and Specialized Applications* (2007, reprinted 2012)

*Assessing and Modeling Cognitive Development in School* (2007)

*Criterion Referenced Testing: Practice Analysis to Score Reporting Using Rasch Measurement* (2009)

*Advances in Rasch Measurement, Vol. 1* (2010)

*Advances in Rasch Measurement, Vol. 2* (2011)

Educational and Psychological Measurement

Advisory Editor 1994-2001

Journal of Outcome Measurement

Founding Editor 1996-1999

Previously indexed in *Index Medicus*, MEDLINE, and *Current Index to Journals in Education*

American Educational Research Association

National Council on Measurement in Education

Psychometric Society

American Congress of Rehabilitation Medicine

American Public Health Association

Mid-Western Educational Research Association

Division I Program Chair 1993, 1996, 1999

Division I Jr. Program Chair 1995, 1998

Co-Editor, Mid-Western Educational Researcher, 1997-1999

Rasch Measurement SIG (AERA)

Co-Founder: 1987

Secretary/Treasurer: 1988-1990

Newsletter Editor: 1987-1990

Program Chair: 1988, 1989, 1996, 1997, 1998, 1999, 2000

## **CERTIFICATION**

Permanent Pennsylvania Teaching Certification in General Science and Art.

## **REFERENCES**

References are available on request.