

DANA V. DIACONU

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EDUCATION

BOSTON COLLEGE, LYNCH SCHOOL OF EDUCATION, CHESTNUT HILL, MA

Ph.D. Educational Research, Measurement, and Evaluation (ERME) **Dec. 2009**

Thesis Title: *Modeling Science Achievement Differences between Single-Sex and Coeducational Schools: Analyses from Two Countries from TIMSS 1995, 1999 & 2003.*

Academic Advisor: *Dr. Henry Braun, Boisi Professor of Education and Public Policy; Director, Center for the Study of Testing, Evaluation, and Educational Policy.*

BROWN UNIVERSITY, DEPARTMENT OF CHEMISTRY, PROVIDENCE, RI

M.Sc. Chemistry **May 2002**

UNIVERSITY OF BUCHAREST, DEPARTMENT OF CHEMISTRY, BUCHAREST, ROMANIA

B.Sc. Chemistry **July 1997**

PROFESSIONAL EXPERIENCE

RICE UNIVERSITY, CENTER FOR EDUCATION, SCHOOL SCIENCE AND TECHNOLOGY, HOUSTON TX

Associate Director for Research, Assessment and Evaluation **June 2009 - present**

Assistant Director for Research, Assessment and Evaluation **July 2008 – May 2009**

- Psychometrics & statistics specialist for a professional development 26 weeks-long training for elementary science teachers from 14 school districts in greater Houston area.
- Contributed to pre- and post-training experimental design, identified evaluation outcomes and formulated corresponding evaluation questions;
- Designed assessment plan to measure program effectiveness, including data collection instruments, such as science achievement tests for students and teachers in 3 grade-levels, surveys of teaching practices and attitudes, surveys of school principals etc.;
- Coordinated data collection efforts, developed student and teachers databases;
- Performed psychometric analysis, including reliability and validity of science achievement instruments;
- Conducted advanced quantitative data analyses, including Analysis of Variance and Hierarchical Linear Models, using statistical packages, including SPSS and HLM;
- Prepared reports of evaluation results and provided interpretation of findings to multiple audiences, including agencies;
- Identified and contributed to writing grant proposals.

**BOSTON COLLEGE, OFFICE FOR UNIVERSITY MISSION AND MINISTRY,
BOSTON, MA**

Research Assistant for Program Evaluation

Sep. 2007 – June 2008

- Designed an on-line survey to measure academic, extracurricular, religious, and spiritual experiences of undergraduate students at four Jesuit institutions, including Boston College, Fordham University, Loyola University – Chicago, and St. Joseph’s University.
- Used scale development methods to tailor each survey to specific needs at each institution.
- Cleaned data and prepared institution-specific SPSS datasets, as well as an aggregated dataset suited for analyzing responses on common scales
- Performed multivariate analyses to evaluate the impact of various university programs on different subgroups of respondents.

**BOSTON COLLEGE, TIMSS & PIRLS INTERNATIONAL STUDY CENTER,
BOSTON, MA**

Research Associate

Aug. 2003 – July 2005

- Collaborated with an international team of curriculum specialists and psychometricians from 50 countries on the development of mathematics and science achievement tests, as well as student, teacher, and schools administrators’ background questionnaires
- Coordinated an international team of content specialists and graphic designers for the in-house writing and publication of TIMSS 2003 Technical Report and User Guide
- Used measurement theory (2- and 3-parameter models) to review the psychometric properties of fourth- and eighth-grade mathematics and science items
- Developed hierarchical linear models for clustered data from observational studies to identify the impact of country-level policy decisions (i.e. national science curriculum, single-sex education, etc.) on student achievement and attitude towards science.

KORN/FERRY INTERNATIONAL, BUCHAREST, ROMANIA

Executive Assistant

July 1997 – July 1998

TEACHING EXPERIENCE

**BOSTON COLLEGE, LYNCH SCHOOL OF EDUCATION, ERME DEPARTMENT,
BOSTON MA**

Graduate Assistant

Sep. 2002 – June 2007

Course: Multivariate Statistics

- Assisted Professor Damian Betebenner with designing instructional materials, course web-page, grading of homework and final exams.

Graduate Assistant

Aug. 2003 – May 2005

Course: *Quantitative Data Collection Procedures: Theory and Practice*

- Lectured when Professor Ina Mullis from the ERME Program was out of town.

Graduate Assistant

Sep. 2002 – July 2003

Courses: *Assessment and Test Construction, Classroom Assessment*

- Developed course materials for *Assessment and Test Construction* course for Professor Joe Pedulla from the ERME Program
- Assisted in analyzing and reporting of national teachers survey data
- Researched web-based instructional materials for *Classroom Assessment* course for Professor Peter Airasian from the ERME Program; materials were later incorporated in Airasian, P. (2004). *Classroom Assessment: Concepts and Applications* (5th ed.) New York: McGraw-Hill.

BROWN UNIVERSITY, DEPARTMENT OF EDUCATION, PROVIDENCE, RI

Graduate Assistant **Jan. 2002 – May 2002**

Course: *Psychology of Teaching*

- Assisted Professor Fayneese Miller in grading exams and evaluating the choice of textbooks for her class

Brown University, Department of Chemistry, Providence, RI

Graduate Assistant **Sep. 2001 – Dec. 2001**

Course: *Chem 10 -Web Introductory Chemistry*

- Participated in a web-based chemical education program funded by the Mellon Foundation
- Participated in the development of a new method for assessment and evaluation of Chem10-web for training students in the basic material that they are expected to know when entering the University
- Designed new web-based instructional materials and textbooks for Chem10-web
- Assessed students' progress, evaluated lab skills and chemical background in individual student descriptions

Teaching Assistant **Sep. 1999 – May 2001**

Courses: *Thermodynamics, Reactions, and Inorganic Chemistry, Chemistry of Organic Compounds, Organic Chemistry*

- Led discussions, laboratory, and review sessions to clarify basic chemical principles in 1st and 2nd year students
- Introduced and assisted students on executing experimental techniques
- Assessed students' progress, evaluated lab skills and chemical background in individual descriptions
- Graded weekly lab reports and final exams.

CONSULTING EXPERIENCE

Data analysis and reporting of the National Survey of Student Engagement (NSSE) for the Office of Institutional Evaluation at St. Anselm College, Manchester NH, 2005 and 2006

HONORS AND CERTIFICATES

- *Hierarchical Data Modeling (HLM) Training*, Dr. Stephen Raudenbush and Dr. Tony Bryk, Scientific Software International, **University of Chicago**, Chicago, IL **Sep. 2007**
- *PIRLS (International Reading Literacy Study) Database Training Seminar*, U.S. Department of Education, **National Center for Educational Statistics** **Aug. 2003**

- Full Scholarship, **Boston College**, Chestnut Hill, MA **2002– 03, 2006-07, 2007-08**
- *The Sheridan Center Teaching Certificate*, **Brown University**, Providence, RI **May 2002**
- *The '01 W.T. King Prize for Outstanding Performance as a Teaching Assistant*, Department of Chemistry, **Brown University**, Providence, RI **May 2001**
- *Full Scholarship*, **Brown University**, Providence RI, **1999-2002**

PROFESSIONAL AFFILIATION

- American Educational Research Association (AERA), since 2005
- American Evaluation Association (AEA), since 2008

TECHNICAL SKILLS

- Operating Systems: PC/MS, Windows, Macintosh, Unix
- Statistical Software: SPSS, SAS, Stata, Winsteps, HLM, AM, Optimal Design

LANGUAGE SKILLS

Fluent in Romanian and English, Basic French and German.

PUBLICATIONS

- Diaconu, D. (2009).** Learning more science in single-sex schools? Findings from Hong Kong and New Zealand from TIMSS 1995, 1999, and 2003. (Manuscript in preparation)
- Diaconu, D. (2004).** The effects of early literacy activities upon reading achievement in grade four in Eastern European countries. In Papanastasiou C. (Ed.) *Proceedings of the IRC-2004 Conference: PIRLS*. (vol. 3, pp. 211-223). Cyprus: Cyprus University Press.
- Diaconu, D., Erberber, E. & Muncaster, K. (2004).** Does instructor availability matter? The size, time, and outclass model by degree. In Ludlow, L. & Trong, K. (Eds.) *A Longitudinal Analysis of One Professor's Course Evaluations* (Vol. V, pp. 7-64). Chestnut Hill, MA: Boston College.
- Gonzalez, E.J., & **Diaconu, D. (2004).** Quality assurance in the TIMSS 2003 data collection. In M.O. Martin, I.V.S. Mullis, & S.J. Chrostowski (Eds.). *TIMSS 2003 Technical Report* (pp.143-173). Chestnut Hill, MA: Boston College.
- Mullis, I.V.S., Martin, M.O. & **Diaconu, D. (2004).** Item analysis and review. In M.O. Martin, I.V.S. Mullis, & S.J. Chrostowski (Eds.). *TIMSS 2003 Technical Report* (pp. 225-253). Chestnut Hill, MA: Boston College.
- Gonzalez, E.J., Galia, J., Arora, A., Erberber, E. & **Diaconu, D. (2004).** Reporting student achievement in Mathematics and Science. In M.O. Martin, I.V.S. Mullis, & S.J. Chrostowski (Eds.). *TIMSS 2003 Technical Report* (pp.275 -309). Chestnut Hill, MA: Boston College.
- Diaconu, D., Zhengbo Hu & Gorun, S.M.** Copper-based Bioinspired Oxygenation and Glyoxalase-like Reactivity. *Journal of American Chemical Society* 2002, 124 (8), 1565.

PRESENTATIONS

- Dominey, W., **Diaconu, D.** (2009). *Rice Model for Teacher Professional Development*. Paper presented at the regional meeting Mathematics and Science Partnership (MSP), April 2009, San Francisco, CA.
- Dominey, W., **Diaconu, D.**, Radigan, J. (2009). *Growing a culture of science*. Paper presented at the annual meeting of the American Educational Research Association, April 2009, San Diego, CA.
- Diaconu, D.** (2008). *Modeling Science Achievement Differences Between Single-sex and Coeducational Schools: Hong Kong, SAR and New Zealand Datasets from TIMSS 1995, 1999, and 2003*. Paper presented at the annual meeting of the New England Educational Research Organization, April 2008, Hyannis, MA.
- Diaconu, D.** (2006). *A Logistic Regression Model to Account For The Probability of Reaching a 'High' Performance On TIMSS 2003 Chemistry Content Domain*. Poster presented at National Council on Measurement in Education Graduate Student Issues Committee (GSIC) Poster Session, April 8-10, 2006, San Francisco, CA.
- Diaconu, D.** (2006). *A Logistic Regression Model to Account For The Probability of Reaching a 'High' Performance On TIMSS 2003 Chemistry Content Domain*. Poster presented at Graduate Student Research Forum, Lynch School of Education, Boston College, March 23, 2006, Chestnut Hill, MA.
- Diaconu, D.** (2004). *The effects of early literacy activities upon reading achievement in grade four in Eastern European countries*. Paper presented at the annual meeting of the New England Educational Research Organization, April 2004, Portsmouth, NH.
- Erberber, E. & **Diaconu, D.** (2004). *Missing data analysis in TIMSS 1999 Rasch analysis*. Paper presented at the Annual Meeting of the New England Educational Research Organization, April 2004, Portsmouth, New Hampshire.
- Diaconu, D.**, Gorun, S. & Zhengbo Hu. Green Oxidation Chemistry via re-engineering of enzyme models active sites. Poster presented at American Chemical Society 30th Northeast Regional Meeting, June 24-27, 2001, University of NH, Durham, NH.

REFERENCES

Available upon request.