

Jason M. Bryer

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Professional Interests

Teaching and research within K-12 and higher education. Specific areas of interest include the use of technology (e.g. R and LaTeX) for reproducible research; math anxiety, math affect, and general perceptions of mathematics; issues of social justice and equity in education; and methodological and statistical topics, particularly propensity score analysis and modern graphics.

Education

- 2006-present **Doctoral Candidate**, *University at Albany*, Albany, NY.
Expected 2014 Educational Psychology & Methodology
- 2009 **M.S.**, *University at Albany*, Albany, NY.
Educational Psychology & Methodology
- 2004-2005 **Coursework Completed**, *The College of Saint Rose Graduate School*, Albany, NY.
Adolescent Education in Mathematics
- 1999 **B.A.**, *The College of Saint Rose*, Albany, NY.
Mathematics major; Computer Information Systems minor

Dissertation

- Title *A National Study Comparing Charter and Traditional Public Schools Using Propensity Score Analysis*
- Committee Robert M. Pruzek (chair), Bruce Dudek, Kathryn S. Schiller
- Abstract The use of propensity score analysis (Rosenbaum & Rubin, 1983) has gained increasing popularity for the estimation of causal effects within observational studies. However, its use in situations where data is multilevel, or clustered, is limited (Arpino & Mealli, 2008; Thommes & West, 2011). This study will introduce the multilevelPSA (Bryer, 2011) package for R that provides functions for estimating propensity scores for large datasets using logistic regression and conditional inference trees. Furthermore, a set of graphical functions that extends the framework of visualizing propensity score analysis introduced by Helmreich and Pruzek (2009) to multilevel analysis will be discussed. An application for estimating the effects of charter schools as compared to traditional public schools on reading and mathematics in grades 4 and 8 is provided.

Professional Experiences

- 2008-present **Senior Research Analyst**, *Excelsior College, Office of Institutional Research*, Albany, NY.
Conduct research and data analysis related to the college's mission. This includes developing, administering, and analyzing surveys; analyzing data from the college's student information system; and consulting with individual schools to develop specific measures. I also provide substantial support and training for other Research Analysts within the Office covering topics such as methodology, statistics, and reproducible research.
- 2012-present **Senior Research Analyst**, *Excelsior College, Office of Research and Grants*, Albany, NY.
Assist the College in seeking external grants and provide research support existing grants. Recent activities include:
Principal Investigator for a grant proposal to develop a Diagnostic Assessment of College Skills.
Principal Investigator for a Gates Foundation funded grant (\$168,572) on the use of adaptive learning technology in Biology and Mathematics.
Research lead for Kresge Foundation funded grant (\$639,000) for the development of Excelsior College's Online Writing Lab.
- 2008-2010 **Research Assistant**, *Head Start University Partnership for Classroom Quality*, Albany, NY.
Assist with data collection, entry, maintenance, and analysis to evaluate the effectiveness of behavioral (Positive Behavior Support [PBS]) and literacy interventions using the Response-to-Intervention (RTI) model.
Principal investigators: Kevin P. Quinn & Frank R. Vellutino
- 2008-2011 **Webmaster**, *University at Albany, School of Education*, Albany, NY.
Develop and maintain all School of Education websites.
- 2006-2007 **Graduate Assistant**, *Teaching Mathematics for Understanding*, University at Albany, Albany, NY.
Developed and led planning sessions with K-8 mathematics teachers in urban school districts on social justice topics in the mathematics curriculum. Assisted in other areas of the project including data collection, conference planning, and development of online professional development courses.
Principal Investigators: Abbe Herzig & Vicky Kouba
- 2006-2008 **Senior Applications Developer**, *Excelsior College*, Albany, NY.
Developed Java applications for distance learning and student management systems.
- 2004-2006 **Senior Software Engineer**, *State University of New York*, Albany, NY.
Developed web based applications in Java and related technologies as part of a state wide financial and human resource systems.
- 1999-2004 **Software Engineer**, *MapInfo*, Troy, NY.
Contributed key features as part of a geographic information system (GIS) server application (MapX-treme Java).
- 1997-1999 **Web Developer**, *Office of the Attorney General*, Albany, NY.
Software developer and website designer for the New York State Attorney General's Website.

Teaching Experiences

- Fall 2014 EPSY 887 Data Science Institute
Data Science is the intersection of statistics, computer science, and research. This seminar will introduce the key concepts of data science with an emphasis on data science in education. We will cover the important statistical and programming concepts necessary for conducting reproducible research on large datasets. The open source program R will be used throughout the course. No programming experience is required but at least two semesters of graduate statistics is highly recommended.
Course website: <https://github.com/jbryer/EPSY887DataScience>
- Fall 2014 EPSY 530 Statistics I (University at Albany)
Summer 2014 Descriptive statistics including measures of central tendency and variability, correlation and re-
Fall 2013 gression. Introduction to statistical inference, including sampling distributions, significance tests, confidence intervals, and power of tests of significance.
Course website: <http://epsy530.bryer.org>
- Spring 2013 EPSY 887 Institute in Education: Computational Statistics (University at Albany)
This seminar will provide an introduction to statistical programming for data analysis with an emphasis on the analysis of large datasets. With the increased availability of large national and international datasets (e.g. PISA, TIMMS, NAEP, ECLS) there is a great opportunity and potential for researchers to address important questions. However, the analysis of large datasets requires special analytical procedures not found in commercial statistics software. Utilizing the open source statistical software R, students will be introduced to the tools and procedures for analyzing large datasets with an emphasis on conducting transparent and reproducible research.
Course website: <https://github.com/jbryer/CompStats>
- July 2013 Introduction to Propensity Score Methods with R (useR! 2013 Pre-Conference Workshop)
This workshop will provide participants with a theoretical overview of propensity score methods as well as illustrations and discussion of PSA applications using R.
- Fall 2013 Introduction to R and LaTeX for Institutional Research (Workshop given at the Northeast
Fall 2012 Association for Institutional Research)
Fall 2011 This workshop provides an overview as well as hands-on exercises for using R and LaTeX to perform data analysis and report generation. Participants learn to perform basic statistical analyses in R and to generate reports with LaTeX in spreadsheet, presentation, and document formats.
- Fall 2010 Introduction to R and LaTeX (Excelsior College In-service workshop)
- Spring 2009 EPSY 420 Child & Adolescent Development (University at Albany)
Fall 2008 This course covers theory and research in social, emotional, physical, and intellectual development and its application to instruction with an emphasis on late childhood through middle adolescence.
- 2007-2012 Assisted in teaching the online section of Statistics I (EPSY 530) including the installation
Fall Semesters and management of the Moodle Content Management System (moodle.bryer.org).

Service Positions

City School District of Albany

2011-2012 Committee Member, Grade Configuration Committee; Chair of the Accountability Subcommittee

American Educational Research Association

2009-2011 Treasurer, Studying and Self-Regulated Learning Special Interest Group

2009-2010 Committee Member, Division D Membership Committee

Excelsior College

2013-present Committee Member, Persistence Measure Task Force

2010-present Committee Member, Student Learning Support Services Committee

2010-present Committee Member, Data Definitions & Quality

2010-present Committee Member, Information Technology Operations & Security Committee

2011-2012 Committee Member, Search Committee for Assistant Provost

2009-2010 Committee Member, Early Alert System for Identifying Non-Persistent Students

2009 Committee Chair, Task Force on a Library of Model Courses

2009-2010 Committee Member, System for Storing Information at Excelsior College

University at Albany, Division of Educational Psychology & Methodology

2007-2008 Treasurer, Graduate Student Organization

Professional Memberships

AERA American Educational Research Association

AIR Association for Institutional Research

ASA American Statistical Association

NEAIR North East Association for Institutional Research

Awards & Grants

2013-2015 **Principal Investigator** for a Bill & Melinda Gates Foundation funded grant (\$168,572) on the use of adaptive learning technology in introductory Biology and Mathematics courses

2013 North East Association for Institutional Research (NEAIR) Ambassador Grant (\$800)

2013 Excelsior College, Employee Recognition Award for Excellence in Innovation

2011, 2012 The Society of Multivariate Experimental Psychology (SMEP), Workshop Travel Award (three separate awards of \$1,000 each)

2011 National Center for Educational Statistics Workshop Travel Award (~\$800)

2009 Association for Institutional Research (AIR) & National Center for Educational Statistics (NCES), Travel Grant (\$330)

- 2009 National Science Foundation, Travel/Research Grant (\$1,000)
- 2009 University at Albany Graduate Student Organization, Travel/Research Grant (\$320.00)
- 2001 Award for Outstanding Performance, MapInfo.
- 1999 Sister Noel Marie Cronin Award for excellence in Mathematics, College of Saint Rose.
- 1999 Outstanding Senior Award for Mathematics/Computer Information Systems, College of Saint Rose.
- 1998, 1999 Service and Appreciation Award, College of Saint Rose.

Unpublished Papers in Preparation

- Bryer, J. M. (In preparation). Trimatch: An R package for propensity score analysis of non-binary treatments. *Journal of Statistical Software*.
- Bryer, J. M. and Pruzek, R. M. (In preparation). multilevelPSA: An R package for estimating and visualizing multilevel propensity score models. *Journal of Statistical Software*.
- Bryer, J. M. (In preparation). Psaboot: An R package for bootstrapping propensity score analysis. *Journal of Statistical Software*.
- Bryer, J. M. and Speerschneider, K. (In preparation). The visual display of Linert data with the `likert` package. *The R Journal*.

Published or Submitted

- Anderson, K., Scanlon, D. M., Goatley, V., Gelzheiser, L. M., and Bryer, J. (In review). Impact of changes in literacy course content in teacher education programs on preservice teachers' knowledge. *Teaching and Teaching Education*.
- Bryer, J. M. (In revision). makeR: An R package for managing document building and versioning. *The R Journal*.
- Nagelsmith, L., Bryer, J. M., and Yan, Z. (2012). Measuring motivation & volition of nursing students in non-traditional learning environments. *Journal of Nursing Measurement*, 20(2).
- Bryer, J. M. and Pruzek, R. M. (2011). An international comparison of private and public schools using multilevel propensity score methods and graphics (abstract). *Multivariate Behavior Research*, 46(6):1010–1011.
- Bryer, J., Daniels, L., Norwood, E., and Applegarth, E. (2010, 2011, 2012, 2013, 2014). *Excelsior College Fact Book*. Excelsior College Office of Institutional Research.

Presentations

- Bryer, J. M. and Speerschneider, K. (2013). Trimatch: An R package for propensity score matching of non-binary treatments. Paper presented at the useR! Conference. Albacete, Spain.
- Speerschneider, K. and Bryer, J. M. (2013). likert: An R package for visualizing and analyzing likert-based items. Paper presented at the useR! Conference. Albacete, Spain.

- Bryer, J. M. (2012b). Using the makeR package for managing document building and versioning. Paper presented at the useR! Conference. Nashville, TN.
- Bryer, J. M. (2012a). Comparing charter and traditional public schools using propensity score analysis. Paper presented at the American Educational Research Association Annual Conference. Vancouver, British Columbia, Canada.
- Bryer, J. M. and Pruzek, R. M. (2012). Moodle: An open way of delivering online courses. Invited talk given to the School of Education, University at Albany. Albany, NY.
- Bryer, J. M. and Daniels, L. (2011). Measuring all students: An alternative method for retention and completion rates. Paper presented at the North East Association for Institutional Research 28th Annual Conference. Boston, MA http://www.neair.org/resource/resmgr/confpapers2011/tues1_paper_camBryerDaniels.pdf.
- Bryer, J. M. and Pruzek, R. (2011). An international comparison of private and public schools using multilevel propensity score methods and graphics. Paper presented at the Society of Multivariate Experimental Psychology (SMEP). Norman, OK.
- Pruzek, R., Danielak, B., Bryer, J., and Doane, W. (2011). Some new developments in graphics for comparing groups. Paper presented at the Society of Multivariate Experimental Psychology (SMEP). Norman, OK.
- Bryer, J. M. (2011f). Visualizing multilevel propensity score analysis. Paper presented at the useR! Conference. Coventry, UK.
- Bryer, J. M. (2011e). Introducing the IPEDS package for R. Presentation given at the Association for Institutional Research 51st Annual Forum. Toronto, Canada.
- Bryer, J. M. (2011d). Software design principles for reproducible research. Presentation given at the Technologies in Education Conference. Albany, NY.
- Bryer, J. M. (2011c). Comparing private and public schools: An international perspective using multilevel propensity score analysis. Poster presented at the annual meeting of the University at Albany Division of Educational Psychology & Methodology. Albany, NY.
- Bryer, J. M. (2011b). Moodle: An open way of delivering online courses. Invited Brown Bag talk given to the Division of Educational Psychology & Methodology. Albany, NY.
- Bryer, J. M. (2011a). Using R and latex to create the excelsior college fact book. Presentation given to the Excelsior College community. Albany, NY.
- Bryer, J. M. (2010). Using r and latex for automating reporting. Paper presented at North East Association for Institutional Research 27th Annual Conference. Saratoga, NY.
- Scanlon, D., Anderson, K., Gelzheiser, L., Goatley, V., Vellutino, F., and Bryer, J. M. (2010). Enhancing knowledge related to research-based early literacy instruction among pre-service teachers (year 3). Poster presented at the Institute of Education Sciences Principal Investigators conference, Washington, D.C.
- Bryer, J. M. (2010). Introduction to r and latex for institutional research. Invited presentation at the Association for Institutional Research 50th Annual Forum. Chicago, IL.

- Bryer, J. M., Ochal, B., and Wescott, K. (2010). Comparing charter and public schools with multilevel models. Poster presented at the annual meeting of the University at Albany Division of Educational Psychology & Methodology. Albany, NY.
- Bryer, J. M. (2009b). Locating students: GIS applications for institutional research. Paper presented at North East Association for Institutional Research 36th Annual Conference. Baltimore, MD <http://www.neair2.org/members/Proceedings/2009/proceedings/Monday/11am-12pm/Bryer.LocatingStudents.Paper.pdf>.
- Bryer, J. M. (2009a). The reliability and validity of the social skills improvement system for head start students. Paper presented at Northeastern Educational Research Association 40th Annual Conference. Rocky Hill, CT.
- Bryer, J. M., Ochal, B., and Westcott, K. (2009). Accessing the effects of early entry to head start using propensity score analysis. Paper presented at Northeastern Educational Research Association 40th Annual Conference. Rocky Hill, CT.
- Bryer, J. M. (2009). Using open source software for the management of large datasets. Paper presented at Directions in Statistical Computing, A Meeting on the Future of Statistical Computing. Copenhagen, Denmark.
- Bryer, J. M., Hoss, K., and LaFave, M. (2009). Using factor analysis to test the reliability and validity of the social skills improvement system for head start students. Poster presented at the annual meeting of the University at Albany Division of Educational Psychology & Methodology. Albany, NY.
- Bryer, J. M. and Nagelsmith, L. (2009). Using structural equation modeling to explore motivation and volition for nurses in nontraditional learning environments. Paper presented at American Educational Research Association Annual Conference. San Diego, CA.
- Bryer, J. M. and Nagelsmith, L. (2008). Exploring motivation & volition for adults in non-traditional learning environments. Paper presented at Northeastern Educational Research Association 39th Annual Conference. Rocky Hill, CT.
- Nagelsmith, L. and Bryer, J. M. (2008). Exploring motivation & volition for adults in non-traditional learning environments. Paper presented at Albany Consortium for Research in Instructional Design & Theory. Albany, NY.
- Bryer, J. M. (2007b). Using bibliographic software to assist research. Paper presented at Brown Bag series for the Division of Educational Psychology. Albany, NY.
- Bryer, J. M. (2007a). Math anxiety in pre-service teachers. Poster presented at the annual meeting of the University at Albany Division of Educational Psychology & Methodology. Albany, NY.
- Bryer, J. M. (1998). Those complicated complex roots. Paper presented at the Hudson River Undergraduate Mathematics Conference. Union College, Schenectady, NY.
- Bryer, J. M. (1997). Computer applications in chaotic dynamical systems. Paper presented at the Hudson River Undergraduate Mathematics Conference. Williams College, Williamstown, MA.

Software

- Bryer, J. M. and Speerschneider, K. (2013). *likert: R package to analyze likert based items*. Available from <http://github.com/jbryer/likert>.

- Bryer, J. M. (2013c). *multilevelPSA: R package for estimating and visualizing multilevel propensity score analysis*. Available from <http://github.com/jbryer/multilevelPSA>.
- Bryer, J. M. (2013b). *sqlutils: R Package for managing a library of SQ files*. Available from <http://github.com/jbryer/sqlutils>.
- Bryer, J. M. (2013a). *naep: R Package for the National Assessment of Educational Progress*. Available from <http://github.com/jbryer/naep>.
- Bryer, J. M. (2012). *makeR: An R package for managing document templates and versions*. Available from <http://github.com/jbryer/makeR>.
- Bryer, J. M. (2011b). *irutils: R Package for Institutional Research*. Available from <http://github.com/jbryer/irutils>.
- Bryer, J. M. (2011a). *ruca: R package for estimating urbanicity*. Available from <http://github.com/jbryer/ruca>.
- Bryer, J. M. (2010). *ipeds. R package for interfacing with the Integrated Postsecondary Education Data System*. Available from <http://github.com/jbryer/ipeds>.
- Bryer, J. M. (2011). *qualtrics. R package for interfacing with the Qualtrics.com survey system*. Available from <http://github.com/jbryer/qualtrics>.
- Bryer, J. M. (2004). *FractalJ. Application to support the teaching of chaotic dynamical systems*. Available from <http://fractalj.sourceforge.net>.

Professional Development Coursework

- 2012 Statistical Modeling in the R Context, Bill Venables, useR! Pre-Conference workshop.
- 2012 Geospatial Data in R and Beyond, Barry Rowlingson, useR! Pre-conference workshop.
- 2012 Building R Web Applications with Rook, Jeffry Horner, useR! Pre-conference workshop.
- 2012 Using the School Attendance Boundary Information System (SABINS), Salvatore Saporito and David Van Riper, AERA Mini-Course.
- 2011 R Development Master Class, Hadley Wickham
- 2011 Fitting and Evaluating Mixed Models using `lme4`, Douglas Bates.
- 2011 National Assessment of Educational Progress (NAEP) Database training, National Center for Educational Statistics.
- 2011 Presenting Data and Information, Edward Tufte.
- 2010 Handling missing data in R with MICE, Karin Groothuis-Oudshoorn and Stef van Buuren, useR!
- 2010 Elastic-R, a google docs-like portal for data analysis in the cloud, Karim Chine, useR!
- 2009 Using IPEDS Data for Institutional Effectiveness, Mary Ann Coughlin, NEAIR Workshop.
- 2009 Accessing and Analyzing National Databases in Secondary and Higher Education, Terrell L. Strayhorn, AERA Extended Course.
- 2009 An Introduction to Hierarchical Linear Modeling with R, J. Kyle Roberts, AERA Mini-Course.

- 2008 An Introduction to Propensity Score Analysis, Robert M. Pruzek, University at Albany.
- 2008 An Introduction to GIS for Educational Researchers, Mark Hogrebe, Courtney A. Bell, & Charisse A. Gulosino, AERA Mini-Course.
- 2008 Foregrounding Issues of Equity and Diversity in Mathematics Education Research: Implications for Research Methods and Teacher Development, Ban Battey, et al., AERA Mini-Course.
- 2008 A "Gentle" Introduction to Statistical Analysis and Teaching with R, Brandon K. Vaughn, AERA Mini-Course.

Graduate Coursework

- EPSY 522 Adolescent Development
- EPSY 530 Statistical Methods I
- EPSY 540 Assessment in Education
- EPSY 610 Advanced Educational Psychology: Learning & Instruction
- EPSY 623 Advanced Developmental Psychology
- EPSY 630 Statistical Methods II
- EPSY 640 Educational & Psychological Measurement
- EPSY 687 Institute in Education: Item Response Theory
- EPSY 713 Self-Regulated Learning
- EPSY 721 Comparative Theories in Human Development
- EPSY 725 Seminar in Human Development: Language Development
- ECPY 725 Multivariate Applications in Counseling Psychology
- ECPY 726 Analysis of Covariance Structures
- EPSY 735 Seminar in Statistics (PSA, bootstrapping, factor analysis)
- EPSY 761 History & Issues in Special Education
- EAPS 762 Seminar in Advanced Research Methods for Educational Leadership (HLM)
- EPSY 780 Seminar in the Profession of Educational Psychology
- ETAP 850 Equity, Diversity, & Social Justice in Mathematics & Science Education
- EPSY 887 Institute in Education: The Use of R in Educational Psychology
- EPSY 887 Institute in Education: Modern Graphics for Social Science Research
- EDU 506 Educational Foundations
- EDU 530 Middle School Education: Theory & Practice
- EDU 590 Research Seminar
- EPY 500 Educational Research
- EPY 502 Survey of Educational Psychology
- SEC 515 Curriculum & Instruction in Secondary Schools
- SEC 518 Literacy Improvement in Secondary Schools
- SEC 522 Methods of Teaching Math in Secondary Schools

References

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