Benjamin R. Shear

Curriculum Vitae

June 2022

ADDRESS

School of Education
University of Colorado Boulder
249 UCB
Boulder, CO 80309

CONTACT

phone: 303.492.8583
e-mail: benjamin.shear@colorado.edu
https://www.colorado.edu/education/benjamin-shear

EDUCATION

2017	*Ph.D., Stanford Graduate School of Education* Developmental and Psychological Sciences Advisors: Edward Haertel & sean f. reardon
2012	*M.A., University of British Columbia* Measurement, Evaluation, and Research Methodology Advisor: Bruno D. Zumbo
2006	*B.A., Dartmouth College* Philosophy (mathematics minor), *magna cum laude*

EMPLOYMENT

2017 – Present	*Assistant Professor* Research and Evaluation Methodology, School of Education, University of Colorado, Boulder, CO *Faculty Partner* Center for Assessment, Design, Research and Evaluation (CADRE), School of Education, University of Colorado, Boulder, CO
2009 – 2016	*Graduate Research Assistant* Stanford Center for Education Policy Analysis (Stanford), Stanford Center for Assessment, Learning and Equity (Stanford), Edgeworth Laboratory (UBC), Visual Cognition Lab (UBC)
2006 – 2008	*High School Mathematics Teacher* Eagle Rock School & Professional Development Center, Estes Park, CO

PUBLICATIONS

PEER-REVIEW JOURNAL ARTICLES

Shear, B. R., & Reardon, S. F. (2021). Using Pooled Heteroskedastic Ordered Probit Models to Improve Small-Sample Estimates of Latent Test Score Distributions. *Journal of Educational and Behavioral Statistics*, *46*(1), 3–33. https://doi.org/10.3102/1076998620922919

Shear, B. R. (2018). Using hierarchical logistic regression to study DIF and DIF variance in multilevel data: DIF and DIF variance in multilevel data. *Journal of Educational Measurement*, *55*(4), 513–542. https://doi.org/10.1111/jedm.12190

Shear, B. R., Nordstokke, D. W., & Zumbo, B. D. (2018). A note on using the nonparametric Levene test when population means are unequal. *Practical Assessment, Research & Evaluation*, *23*(13), 1–11.

Lockwood, J. R., Castellano, K. E., & **Shear, B. R.** (2018). Flexible Bayesian models for inferences from coarsened, group-level achievement data. *Journal of Educational and Behavioral Statistics*, *43*(6), 663–692. https://doi.org/10.3102/1076998618795124

Reardon, S. F., **Shear, B. R.**, Castellano, K. E., & Ho, A. D. (2017). Using heteroskedastic ordered probit models to recover moments of continuous test score distributions from coarsened data. *Journal of Educational and Behavioral Statistics*, *42*(1), 3–45. https://doi.org/10.3102/1076998616666279

Zumbo, B. D., Liu, Y., Wu, A. D., **Shear, B. R.**, Olvera Astivia, O. L., & Ark, T. K. (2015). A methodology for Zumbo's third generation DIF analyses and the ecology of item responding. *Language Assessment Quarterly*, *12*(1), 136–151. http://doi.org/10.1080/15434303.2014.972559

Shear, B. R., & Zumbo, B. D. (2013). False positives in multiple regression: Unanticipated consequences of measurement error in the predictor variables. *Educational and Psychological Measurement*, *73*(5), 733–756. http://doi.org/10.1177/0013164413487738

BOOK CHAPTERS & INVITED SUBMISSIONS

Stout, W., Henson, R., DiBello, L., & **Shear, B. R.** (2019). The Reparameterized Unified Model system: A diagnostic assessment modeling approach. In M. von Davier & YS Lee (Eds.), *Handbook of Diagnostic Classification Models* (pp. 47–79). Springer. https://doi.org/10.1007/978-3-030-05584-4_3

Fahle, E. M., **Shear, B. R.**, & Shores, K. A. (2019)*. Assessment for monitoring of education systems: The U.S. example. *The ANNALS of the American Academy of Political and Social Science*, *683*(1), 58–74. https://doi.org/10.1177/0002716219841014

Shear, B. R., & Roussos, L. A. (2017). Validating a distractor-driven geometry test using a generalized diagnostic classification model. In B. D. Zumbo & A. M. Hubley (Eds.), Understanding and investigating response processes in validation research (Vol. 69, pp. 277–304). Springer International Publishing. https://doi.org/10.1007/978-3-319-56129-5_15

Zumbo, B. D., Liu, Y., Wu, A. D., Forer, B., & **Shear, B. R.** (2017). National and international educational achievement testing: A case of multi-level validation framed by the ecological model of item responding. In B. D. Zumbo & A. M. Hubley (Eds.), *Understanding and investigating response processes in validation research* (Vol. 69, pp. 341–361). Springer International Publishing. https://doi.org/10.1007/978-3-319-56129-5_18

Shear, B. R., & Zumbo, B. D. (2014). What counts as evidence: A review of Validity Studies in Educational and Psychological Measurement. In B. D. Zumbo & E. K. H. Chan (Eds.), *Validity and validation in social, behavioral, and health sciences* (pp. 91–111). Springer. https://doi.org/10.1007/978-3-319-07794-9_6

REPORTS AND OTHER PUBLICATIONS

Shear, B. R., Diaz-Bilello, E., Student, S., & Pierre-Louis, M. (2021). *Evaluation of Colorado School Turnaround Network and School Turnaround Leadership Development Grants: Descriptive Analysis of 2015- 2020 Cohorts.* The Center for Assessment, Design, Research and Evaluation

(CADRE). https://www.colorado.edu/cadre/2021/04/02/evaluation-colorado-school-turnaround-network-and-school-turnaround-leadership

Shear, B. R. (2020). *Comparison of 2019 cohort and baseline student growth percentiles*. The Center for Assessment, Design, Research and Evaluation (CADRE). https://www.colorado.edu/cadre/node/373/attachment

Shear, B. R. (2019). *Summary of median growth percentile analyses: Descriptive statistics, demographics correlations, and stability analyses*. The Center for Assessment, Design, Research and Evaluation, University of Colorado Boulder. https://www.colorado.edu/cadre/2020/01/16/summary-median-growth-percentile-analyses-descriptive-statistics-demographics

Fahle, E. M., Shear, B. R., Kalogrides, D., Reardon, S. F., Chavez, B., & Ho, A. D. (2019). *Stanford Education Data Archive Technical Documentation (Version 3.0)*. https://edopportunity.org/papers/SEDA_documentation_v30_DRAFT09212019.pdf [Also contributed to documentation for Versions 2.0 and 2.1]

Shear, B. R., Diaz-Bilello, E., Chattergoon, R. (2017, August). *Considerations for adopting and implementing innovative assessment systems.* Report prepared for the Colorado Department of Education. Center for Assessment, Design, Research and Evaluation, University of Colorado Boulder.

Shear, B. R. (2017). *Review of "Apples to Apples: The Definitive Look at School Test Scores in Milwaukee and Wisconsin."* National Education Policy Center, University of Colorado Boulder. http://nepc.colorado.edu/thinktank/review-milwaukee-vouchers

Nayfield, I., Pecheone, R., Whittaker, A., Shear, B. R., & Klesch, H. (2015). Educative assessment & meaningful support: 2014 edTPA administrative report. Stanford Center for Assessment, Learning and Equity.

Shear, B. R. (2014). "Mathematics achievement" and "Mean differences." In *Encyclopedia of Quality of Life and Well-Being Research*. Springer Reference.

STATISTICAL SOFTWARE AND DATASETS

Reardon, S. F., Ho, A. D., Shear, B. R., Fahle, E. M., Kalogrides, D., Jang, H., Chavez, B. (2021). Stanford Education Data Archive (Version 4.1). http://purl.stanford.edu/db586ns4974. [Also contributed to development of Versions 1.0, 1.1, 2.0, 2.1, 3.0, and 4.0]

Shear, B. R. & Reardon, S. F., (2017; 2019), HETOP: Stata module for estimating heteroskedastic ordered probit models with ordered frequency data, http://EconPapers.repec.org/RePEc:boc:bocode:s458287.

* = authorship listed alphabetically.

SELECTED CONFERENCE PAPERS AND POSTERS

INVITED SESSIONS

Shear, B. R. (2022, April). *Item format gender bias in large-scale assessment: New evidence and considerations for state accountability testing.* Invited poster for Excellence in Education Research: Early Career Scholars and Their Work at the 2022 American Educational Research Association Annual Meeting, San Diego, CA.

Shear, B. R. (2019, March). *Using administrative test-score data to study educational opportunity in the U.S.* Invited Keynote Address at the 7th Annual Leadership Symposium, St. John's University, Queens, NY.

PAPER PRESENTATIONS

Shear, B. R. (2022, April). *Item format gender bias in large-scale assessment: New evidence and considerations for state accountability testing.* Presented at the 2022 National Council on Measurement in Education Annual Meeting, San Diego, CA.

Shear, B. R., Ho, A. D., & Reardon, S. F. (2021, May). *Models for aggregate growth and progress using multiyear, multicohort datasets.* Presented at the 2021 National Council on Measurement in Education Annual Meeting [held on-line].

Shear, B. R., Ho, A. D., Reardon, S. F., & Fahle, E. M. (2020, March). *Improving the precision and interpretation of aggregate school growth metrics.* Accepted at the Society for Effectiveness in Education 2020 Annual Meeting. [Not presented due to COVID-19 cancellation of conference.]

Shear, B. R. (2019, June). *Validating the use of growth for high-stakes accountability*. Presented at the CCSSO National Conference on Student Assessment, Orlando, FL.

Shear, B. R. (2018, April). *Using hierarchical logistic regression to study DIF variance*. Presented at the National Council on Measurement in Education Annual Meeting, New York, NY.

Shear, B. R., Reardon, S. F., Fahle, E. M., & Ho, A. D. (2018, April). *Mapping proficiency standards using heteroskedastic ordered probit models and NAEP-based linear linking*. Presented at the National Council on Measurement in Education Annual Meeting, New York, NY.

Ho, A. D., Shear, B. R., Reardon, S. F., & Fahle, E. M. (2018, April). *Rise and convergence of state proficiency standards in the Common Core era*. Presented at the National Council on Measurement in Education Annual Meeting, New York, NY.

Shear, B. R., Ho, A. D., Reardon, S. F., & Fahle, E. M. (2018, March). *Trends in state proficiency standards in the Common Core era.* Paper presented at the Society for Research on Educational Effectiveness Spring 2018 Conference, Washington, DC.

Shear, B. R., & Reardon, S. F. (2017, April). *Using pooled heteroskedastic ordered probit models to improve small-sample estimates*. Paper presented at the National Council on Measurement in Education 2017 Annual Meeting, San Antonio, TX.

Lockwood, J. R., Castellano, K. E., & Shear, B. R. (2017, April). *Flexible Bayesian models for inferences from coarsened, group-level achievement data*. Paper presented at the National Council on Measurement in Education 2017 Annual Meeting, San Antonio, TX.

Shear, B. R., & Thum, Y. M. (2017, March). *Sensitivity of achievement gap trend estimates to alternative treatments of nested data.* Paper presented at the Society for Research on Educational Effectiveness Spring 2017 Conference, Washington, DC.

Shear, B. R., & Thum, Y. M. (2016, April). *Alternative approaches for comparing test score achievement gap trends.* Poster presented at the National Council on Measurement in Education 2016 Annual Meeting, Washington, DC.

Shear, B. R., Castellano, K. E., Reardon, S. F., & Ho, A. D. (2015, April). *Recovering NAEP and state test score distributions using coarsened data.* Paper presented at the National Council on Measurement in Education 2015 Annual Meeting, Chicago, IL.

Shear, B. R., Roussos, L. A., DiBello, L. V., Henson, R. A., & Stout, W. F. (2015, April). *Fitting diagnostic classification models to distractor-driven tests for validation purposes.* Paper presented at the National Council on Measurement in Education 2015 Annual Meeting, Chicago, IL.

Shear, B. R., Castellano, K. E., Reardon, S. F., & Ho, A. D. (2014, March). *Simultaneous estimation of multiple achievement gaps from ordinal proficiency data*. Paper presented at the Society for Research on Educational Effectiveness Spring 2014 Conference, Washington, DC.

Shear, B. R., Nordstokke, D. W., & Zumbo, B. D. (2013, April). *On centering scores before applying the nonparametric Levene test*. Paper presented at American Educational Research Association 2013 Annual Meeting, San Francisco, CA.

Ark, T. K., Shear, B. R., & Zumbo, B. D. (2013, April). *Demonstration of the impact of data entry errors on generalizability and decision studies: Crossed and nested two-facet designs.* Paper presented at the American Educational Research Association 2013 Annual Meeting, San Francisco, CA.

Liu, Y., Shear, B. R., & Zumbo, B. D. (2013, April). *Impact of outliers arising from a subpopulation on ordinary least squares and robust regression estimates*. Paper presented at the American Educational Research Association 2013 Annual Meeting, San Francisco, CA.

Shear, B. R., Olvera, O. L., & Zumbo, B. D. (2012, April). *Relative variable importance measures for multiple linear regression in suppression situations: A Monte Carlo study*. Paper presented at the American Educational Research Association 2012 Annual Meeting, Vancouver, BC.

Shear, B. R., & Zumbo, B. D. (2012, April,). *What counts as evidence? An empirical review of Validity Studies in Educational and Psychological Measurement*. Poster presented at the American Educational Research Association 2012 Annual Meeting, Vancouver, BC.

Zumbo, B. D., Liu, Y., Shear, B. R., Olvera, O.L., Ark, T.K., & Wu, A.D. (2012, April). *Latent class logistic regression family of models and its applications to Explanatory DIF.* Paper presented at the National Council on Measurement in Education 2012 Annual Meeting, Vancouver, BC.

Zumbo, B. D., Liu, Y., Wu, A. D., Forer, B., & Shear, B. R. (2010, May). *National and international educational achievement testing: a case of multi-level validation.* Paper presented at the American Educational Research Association 2010 Annual Meeting, Denver, CO.

HONORS AND AWARDS

2020	AERA Division D Award for Significant Contribution to Educational Measurement and Research Methodology (jointly with sean reardon, Andrew Ho, Erin Fahle, and Demetra Kalogrides)
2018	NCME Annual Award for Exceptional Achievement in Educational Measurement (jointly with sean reardon, Andrew Ho, Erin Fahle, Ken Shores, Katherine Castellano, and Demetra Kalogrides)
2017 - Present	National Education Policy Center Fellow
2012 – 2016	Institute of Education Sciences Predoctoral Training Fellowship
2012 – 2013	Thomas G. and Terry B. Eastman Fellowship
2011 – 2012	ECPS Department Student Funding Award
2011	UBC Faculty of Education Student Research Grant
2009	Americorps Education Award
2006	Phi Beta Kappa inductee

GRANTS

2021 – 2022	*Gender Bias in Item Formats for Large-Scale Assessments.* AERA Grants Program, NSF Award NSF-DRL #1749275 (Total award $25,000).
2021 – 2022	*Technical Assistance to Colorado Department of Education.* Colorado Department of Education. PI Benjamin Shear; Co-PI Elena Diaz-Bilello (Total award $73,640).
2020 – 2021	*Technical Assistance to Colorado Department of Education.* Colorado Department of Education. PI Benjamin Shear; Co-PI Elena Diaz-Bilello (Total award $73,189).
2019 – 2020	*Technical Assistance to Colorado Department of Education.* Colorado Department of Education. PI Benjamin Shear; Co-PI Elena Diaz-Bilello (Total award $67,221).
2019 – 2020	*Accountability and Assessments in Small Rural School Districts.* School of Education Place-Based Partnership Award. PI Terri Wilson; Co-PI Benjamin Shear (Total award $13,999).
2018 – 2019	*Technical Assistance to Colorado Department of Education.* Colorado Department of Education. PI Benjamin Shear; Co-PI Elena Diaz-Bilello (Total award $55,000).
2017 – 2019	*Expanding the Stanford Education Data Archive.* Bill and Melinda Gates Foundation. Subaward from Stanford University, PI Sean F. Reardon. (Total award $1,013,000; CU Boulder award $146,812).
2017 – 2018	*Technical Assistance to Colorado Department of Education.* Colorado Department of Education. PI Elena Diaz-Bilello; Co-PI Benjamin Shear (Total award $76,705).
2011 – 2012	*Measurement validation practices: A systematic review of the literature and implications for validity theory.* Faculty of Education UBC HSS Seed Grant. Co-PI with Dr. Bruno Zumbo. ($6,739 CAD).

TEACHING

GRADUATE COURSES

EDUC 8230: Quantitative Methods I, University of Colorado Boulder School of Education, Fall 2018, 2019

EDUC 8720: Advanced Topics in Measurement: Item Response Theory, University of Colorado Boulder School of Education, Spring 2018

EDUC 8710: Introduction to Measurement in Survey Research, University of Colorado Boulder School of Education, Fall 2017, Fall 2020

EDUC 7396: Categorical Data Analysis, University of Colorado Boulder School of Education, Spring 2017, 2019, 2020

TEACHING ASSISTANTSHIPS

EDUC 259X: Application of Hierarchical Linear Models in Behavioral and Social Research, Stanford Graduate School of Education, Winter 2015

EDUC 200C: Introduction to Statistical Methods in Education, Stanford Graduate School of Education, Fall 2013/2014/2015

SERVICE AND PROFESSIONAL ACTIVITIES

PROFESSIONAL AFFILIATIONS

American Educational Research Association, National Council on Measurement in Education, Psychometric Society, Society for Research on Educational Effectiveness

AD-HOC REVIEWER

Journals: *American Educational Research Journal; Educational Measurement: Issues and Practice; Educational Assessment*; *Educational and Psychological Measurement; Educational Researcher; AERA Open; Journal of Educational Measurement*; *Journal of Modern Applied Statistical Methods*; *Psychology in the Schools*; *School Effectiveness and School Improvement; Public Affairs Quarterly; Journal of Experiential Education*

Conferences: NCME Annual Meeting; AERA Annual Meeting; SREE Annual Meeting

COMMITTEES

Publications Committee Member, National Council on Measurement in Education 2013-2016

Planning Committee Member, 2019 National Council on Measurement in Education Special Conference on Classroom Assessment

TRAINING SESSIONS AND WORKSHOPS

AERA-ICSPR Series in STEM Data and Data Use: Introduction to the Stanford Education Data Archive (SEDA) (with sean f. reardon, Andrew Ho, and Erin Fahle)*.* (March, 2021). On-line webinar. https://www.aera.net/Professional-Opportunities-Funding/Professional-Development-Courses/PEERS-STEM-Data-and-Data-Use-Series

Using School-Level Data from the Stanford Education Data Archive (with sean f. reardon, Andrew Ho, and Erin Fahle). (March, 2019). Half-day workshop presented at the Society for Research on Educational Effectiveness Annual Meeting, Washington, DC.

The Stanford Education Data Archive: Using big data to study academic performance (with sean f. reardon, Andrew Ho, and Erin Fahle). (April, 2018). Half-day workshop presented at the National Council on Measurement in Education Annual Meeting, New York, NY.

The Stanford Education Data Archive: Using big data to study academic performance (with sean f. reardon, Andrew Ho, and Erin Fahle). (February, 2018). Half-day workshop presented at the Society for Research on Educational Effectiveness Annual Meeting, Washington, DC.

The Stanford Education Data Archive: Using big data to study academic performance (with sean f. reardon, Andrew Ho, and Erin Fahle). (April, 2017). Half-day workshop presented at the American Educational Research Association Annual Meeting, San Antonio, TX.

The Stanford Education Data Archive: Using big data to study academic performance (with sean f. reardon, Andrew Ho, and Erin Fahle). (March, 2017). Half-day workshop presented at the Society for Research on Educational Effectiveness Annual Meeting, Washington, DC.

The Stanford Education Data Archive: Using big data to study academic performance (with sean f. reardon, Andrew Ho, Kenneth Shores and Erin Fahle). (May, 2016). Workshop presented at the Education and Inequality in 21st Century America Conference, Stanford Center for Education Policy Analysis, Stanford, CA.

Exploratory factor analysis in R and Stata. (April, 2016). Workshop presented at the Stanford GSE Methodology Lunch Series, Stanford, CA.

The concept of validity and some novel validation methods (with Bruno Zumbo). (October, 2011). In-conference workshop presented at the Northeastern Educational Research Association Annual Meeting, Rocky Hill, CT.