Bryan Keller

Curriculum Vitae

Department of Human Development
Teachers College, Columbia University
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Appointments

2013–	**Assistant Professor of Applied Statistics**, *Teachers College, Columbia University*, New York, NY.
2015–	**Faculty-at-Large**, *Columbia University, Graduate School of Arts and Sciences*, New York, NY.

Education

2013	**PhD, Educational Psychology, Quantitative Methods**, *Univ of Wisconsin–Madison*.
	Dissertation committee: Jee-Seon Kim (Sponsor), Peter M. Steiner, and David Kaplan
2010	**MS, Educational Psychology, Quantitative Methods**, *Univ of Wisconsin–Madison*.
2002	**MA, Mathematics**, *Binghamton University*, State University of NY.
2002	**MAT, Mathematics (grades 8 – 12)**, *Binghamton University*, State University of NY.
2000	**BS, Mathematics (cum laude)**, *Binghamton University*, State University of NY.

Publications (*indicates student)

In Preparation

Keller, B. (In Preparation). A Six-Arm Design Replication Study: Design, Results, and Implications.

Tsai, L., **Keller, B.**, *Liu, R., Seth, K., Tabassum, S., & Meenai, Z. (In Preparation). Assessing a workforce development program for women receiving human trafficking-specific services in India.

Under Review

Keller, B. (Revise & Resubmit). Variable Selection for Causal Effect Estimation: Conditional Random Forest Variable Importance Under Permutation. *Journal of Educational and Behavioral Statistics*.

Chen, J. & **Keller, B.** (Revise & Resubmit). Heterogeneous Subgroup Identification in Observational Studies. *Journal of Research on Educational Effectiveness*.

Schwinn, T. M., Schinke, S. P., Hopkins, J. E., **Keller, B.** (2nd Revision Requested). Two- and Three-Year Follow-Up from a Gender-Specific, Web-Based Drug Abuse Prevention Program for Adolescent Girls. *Addictive Behaviors*.

Journal Articles (Peer Reviewed)

Keller, B., Chen, J., & *Zhang, T. (Accepted) Heterogeneous Subgroup Identification with Observational Data: A Case Study Based on the National Study of Learning Mindsets. *Observational Studies*.

*Yang, J., Clarke-Midura, J., **Keller, B.**, Baker, R. S., Paquette, L., & Ocumpaugh, J. (2018) Note-Taking and Science Inquiry in an Open-ended Learning Environment. *Journal of Contemporary*

Educational Psychology, 55: 12–29. doi: 10.1016/j.cedpsych.2018.08.004.

*McCullough, A. K., **Keller, B.**, Qiud, S., & Ewing Garber, C. (2018). Analysis of accelerometer-derived interpersonal spatial proximities: A calibration, simulation, and validation study. *Measurement in Physical Education and Exercise Science*, 22: 275–286. doi: 10.1080/1091367X.2018.1437039.

Schwinn, T. M., Schinke, S. P., Hopkins, J. E., **Keller, B.**, & *Liu, X. (2018). An online drug abuse prevention program for adolescent girls: Posttest and 1-year outcomes. *Journal of Youth and Adolescence*, 47: 490–500. doi: 10.1007/s10964-017-0714-4.

*Bazaldua, D. A. L., Lee, Y.-S., **Keller, B.**, & *Fellers, L. (2017). Assessing the Performance of Classical Test Theory Item Discrimination Estimators in Monte Carlo Simulations. *Asia Pacific Education Review*, 18: 585–598. doi: 10.1007/s12564-017-9507-4.

Keller, B. & Tipton, E. (2016). Propensity score analysis in R: A software review. *Journal of Educational and Behavioral Statistics*, 41: 326–348. doi: 10.3102/1076998616631744.

*Weishaar, T., Rajan, S., **Keller, B.** (2016). Probability of vitamin D deficiency by body weight and race-ethnicity. *Journal of the American Board of Family Medicine*, 29: 226–232. doi: 10.3122/jabfm.2016.02.150251.

Rajan, S., *Weishaar, T., **Keller, B.** (2016). Weight and skin color as predictors of vitamin D status: Results of an epidemiological investigation using nationally representative data. *Public Health Nutrition*, 12: 1–8. doi: 10.1017/S1368980016000173.

Keller, B., Kim, J.-S., & Steiner, P. M. (2013). Data mining alternatives to logistic regression for propensity score estimation: Neural networks and support vector machines. *Multivariate Behavioral Research*, 48, 164–164 (Abstract). doi: 10.1080/00273171.2013.752263.

Keller, B. (2012). Detecting treatment effects with small samples: The power of some tests under the randomization model. *Psychometrika*, 77, 324–338. doi: 10.1007/s11336-012-9249-5.

Kaplan, D. & **Keller, B.** (2011). A note on cluster effects in latent class analysis. *Structural Equation Modeling*, 18, 525–536. doi: 10.1080/10705511.2011.607071.

Book Chapters

*Yang, J., Clarke-Midura, J., Baker, R. S., Paquette, L. & **Keller, B.** (2018). How immersive virtual environments foster self-regulated learning. In Zheng, R. (Ed.), *Digital Technologies and Instructional Design for Personalized Learning*. Hershey, PA: IGI Global.

Keller, B., Kim, J.-S., & Steiner, P. M. (2015). Neural networks for propensity score estimation: Simulation results and recommendations. In L. A. van der Ark, D. M. Bolt, S.-M. Chow, J. A. Douglas, & W.-C. Wang (Eds.), *Quantitative psychology research*. New York, NY: Springer.

Kim, J.-S., Anderson, C. J., & **Keller, B.** (2014). Multilevel analysis of large-scale assessment data. In L. Rutkowski, M. von Davier, & D. Rutkowski (Eds.), *A handbook of international large-scale assessment: Background, technical issues, and methods of data analysis*. London: Chapman Hall/CRC Press.

Anderson, C. J., Kim, J.-S., & **Keller, B.** (2014). Modeling multilevel categorical response variables. In L. Rutkowski, M. von Davier, & D. Rutkowski (Eds.), *A handbook of international large-scale assessment: Background, technical issues, and methods of data analysis*. London: Chapman Hall/CRC Press.

Grant Applications

Funded

Keller, B. (2018; Funded). Evaluating Causal Effect Estimators: A New Within-Study Comparison. Total budget: $9,083.33. 2017-2018 Teachers College Dean's Competitive Grant for Pre-Tenured Faculty. Role, Principal Investigator.

Schwinn, T., Marshal, M, Schinke, S. (2018; Funded). Preventing Drug Abuse among Sexual-Minority Youth. Total budget: $3,937,810. National Institute on Drug Abuse. Role: Statistician.

Tipton, B., Johnson, M. S. & **Keller, B.** (2016; Funded). Teaching Assistants and Multiple Lab Sections: A New Model for Improving Student Outcomes in Core Statistics Courses. Total budget: $20,000. Teachers College Provost Investment Fund. Role: Co-Investigator.

Johnson, M. S., Tipton, B., & **Keller, B.** (2014; Funded). Exploring "Twinned" Certificate Programs between EPSA and MEAS. Total budget: $20,000. Teachers College Provost Investment Fund. Role: Co-Investigator.

Under Review & Unfunded

Keller, B. (2018; Under review). The Community College Compass: Mapping a Guided Pathway into Geosciences. Total budget: $49,918. Submitted November 2018 to NSF Improving Undergraduate STEM Education: Pathways into Geoscience. Role: Primary Investigator for External Evaluation (Subaward). Prime Contractor: Lamont Doherty Earth Observatory, Columbia University, PI: Cassie Xu.

Keller, B. (2018; Under review). Effect Heterogeneity in National Large-Scale Data Sets: Detection and Estimation. Total budget: $25,000. Submitted October 2018 to AERA Grants Program. Role: Primary Investigator.

Corter, J. & **Keller, B.** (2018; Under review). IGE: Diagnostic Assessment and individualized instruction in graduate applied statistics courses for the social sciences. Total budget: $459,594. Submitted September 2018 to NSF Innovations in Graduate Education Program. Role: Co-Investigator.

Lang, C. & **Keller, B.** (2018; Not Funded). A Scalable Course in the Python Programming Language for Teachers College. Total budget: $20,000. Teachers College Provost Investment Fund. Role: Co-Investigator.

Geliebter, A. S. (2018; Not Funded) Predicting Bariatric Surgery Outcome from Neuroimaging, Eating Behavior, and Cognition. Total budget: $474,676. Submitted to NIH. Role: Statistician.

Poghosyan, L., Westaby, J., and **Keller, B.** (2016; Not Funded). Configurations of Teams in Medical Homes and their Impacts on Outcomes. Total budget: $1,638,647. Submitted June 2016 to the Agency for Healthcare Research & Quality. Role: Co-Investigator.

Keller, B., Pacquette, L. and Baker, R. (2015; Not Funded). Unsupervised Learning for Cross-System Transfer of Digital Student Behavior Models. Submitted August 2015 to the National Science Foundation, Methodology, Measurement, and Statistics Program. Role: Primary Investigator.

Conference Presentations (*student)

Keller, B. (2019, July; Accepted). *A Six-Arm Design Replication Study: Design, Results, and Implications*, in invited session "Developing the Methodological Foundations for Replication Sciences" with discussion by Larry Hedges and Jennifer Hill. To be presented at the 2019 Joint Statistical Meeting, Denver, CO.

*Lu, R. & **Keller, B.** (2019, April; Accepted), *Controlling for latent confounding by confirmatory factor analysis*. Paper to be presented at the American Educational Research Association, Toronto, Canada.

Keller, B. (2019, March; Accepted). *Preliminary Results from A Six-Arm Design Replication Study*, in symposium "The Methodological Foundations of Replication Sciences" with discussion by Larry Hedges and Elizabeth Stuart. To be presented at the 2019 Meeting of the Society for Research on Educational Effectiveness, Washington, DC.

*Lu, R. & **Keller, B.** (2018, July), *Covariate Selection for High Dimensional and Small Sample Size Causal Inference*. Presented at the International meeting of Psychometric Society, New York, NY.

Keller, B. (2018, May). *Permutation-Based Variable Selection with Random Forests*. Presented at the 2018 Atlantic Causal Inference Conference, Pittsburgh, PA.

Keller, B., *Zhang, T., & Chen, J. (2018, May). *Heterogeneous Subgroup Identification with Observational Data*. Presented at the Workshop for Empirical Investigation of Methods for Heterogeneity, Pittsburgh, PA.

Keller, B. & *Hou, Z. (2018, April). *On the Standard Errors of Causal Effect Estimators After Variable Selection*. Presented at the Annual Meeting of the American Educational Research Association, Division D, New York, NY.

Keller, B. & *Zhang, T. (2018, March). *A New Method for Variable Selection with Random Forests in a Conditional Independence Framework*. Presented at the 2018 Society for Research on Educational Effectiveness Spring Conference, Washington, D. C.

Keller, B. & *Zhang, T. (2017, July). *CART-Based Methods for Variable Selection in a Conditional Independence Framework*. Paper presented at the 2017 International Meeting of the Psychometric Society, Zurich, Switzerland.

Keller, B. & *Hou, Z. (2017, May). *Causal Inference After Model Selection: Simulation Results*. Presented at the Columbia University Causal Inference Conference, New York, NY.

Keller, B. (2017, May). *Causal Inference After Model Selection*. Presented at the 2017 Atlantic Causal Inference Conference, Chapel Hill, NC.

Keller, B. & *Hou, Z. (2017, March). *On the Standard Errors of Causal Effect Estimators After Variable Selection*. Presented at the 2017 Society for Research on Educational Effectiveness Spring Conference, Washington, D. C.

Schwinn, T.M., Hopkins, J., Schinke, S., **Keller, B.**, *Liu, X. (2016, June) *A gender-specific, web-based intervention to prevent drug abuse among adolescent girls*. Presented at the 2016 Society for Prevention Research 24th Annual Meeting, San Francisco, CA.

Keller, B. & Chen, J. (2016, May). *Covariate selection with observational data Simulation results and discussion*. Presented at the 2016 Atlantic Causal Inference Conference, New York, NY.

Chen, J. & **Keller, B.** (2016, April). *Investigating heterogeneous treatment effects in observational studies using propensity score matching and regression trees*. Presented at the 2016 Annual Meeting of the American Educational Research Association, Division D, Washington, D. C.

Keller, B. & Chen, J. (2016, March). *Empirically driven variable selection for the estimation of causal effects with observational data*. Presented at the 2016 Society for Research on Educational

Effectiveness Spring Conference, Washington, D. C.

Keller, B., Swoboda, C. M., & *Liu, Xiang (2015, May). *On the predictive performance of data-mining methods with multi-level data*. Presented at the 2015 Atlantic Causal Inference Conference, Philadelphia, PA.

Keller, B. & *Han, Z. (2015, March). *A case study with nn4pse: An R package for propensity score estimation with neural networks*. Presented at the Society for Research on Educational Effectiveness Spring Conference, Washington, D. C.

Keller, B., Kim, J.-S., & Steiner, P. M. (2014, July). *Neural networks and random forests for propensity score estimation: A simulation study*. Paper presented at the 2014 International Meeting of the Psychometric Society, Madison, WI.

Anderson, C. J., Kim, J.-S., & **Keller, B.** (2014, April). *Multilevel modeling of categorical variables from international large scale assessments*. Paper presented at the 2014 Annual Meeting of the National Council for Measurement in Education, Philadelphia, PA.

Keller, B., Kim, J.-S., & Steiner, P. M. (2013, March). *Propensity score estimation with data mining techniques: Alternatives to logistic regression*. In P. M. Steiner (Chair), *Advances and Challenges in Propensity Score Matching*. Symposium at the Society for Research on Educational Effectiveness Spring Conference, Washington, D. C.

Keller, B., Kim, J.-S., & Steiner, P. M. (2012, October). *Neural networks and support vector machines as alternatives to logistic regression for propensity score estimation: Why and when?* Presented at the 2012 Annual Meeting of the Society for Multivariate Experimental Psychology, Vancouver, BC, Canada.

Keller, B. (2012, July). *Randomization Tests: Why, When, and How?* Poster session presented at the 75th International Meeting of the Psychometric Society, Athens, GA.

Kaplan, D. & **Keller, B.** (2009, October). *Cluster effects in the latent class model*. Presented at the 2009 Annual Meeting of the Society for Multivariate Experimental Psychology, Salishan, Oregon.

Invited Presentations

Keller, B. (2018, September). Detecting Heterogeneous Subgroup Effects with Observational Data: Results from a Monte Carlo Simulation and a Case Study with the ECLSK, Monday Seminar in Measurement and Statistics, Department of Human Development and Quantitative Methodology, University of Maryland, College Park, MD

Keller, B. (2015, October). Covariate Selection with Observational Data: Simulation Results and Discussion. PRIISM Seminar Series, New York University, New York, NY

Keller, B. (2015, March). Data-mining alternatives to (generalized) linear regression: Why and how? Department of Psychology Research Colloquium, Fordham University, New York, NY

Professional Service

Journal Reviewing

- Advances in Methods and Practices in Psychological Science, Journal of Causal Inference, Journal of Educational and Behavioral Statistics, Journal of Research on Educational Effectiveness, Measurement in Physical Education and Exercise Science, Multivariate Behavioral Research, Pharmaceutical Statistics, PLOS One, Psychological Methods, Research Synthesis Methods, Structural Equation Modeling: A Multidisciplinary Journal

Conference Reviewing

- AERA Division D, Atlantic Causal Inference, SREE Methods Section

Other

- Member, Organizing Committee, Atlantic Causal Inference Conference, 2016
- Reviewer for the Flanders Research Foundation, Belgium (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)

University Service

2018–	Program Director, MS in Applied Statistics, Department of Human Development
2018–	Reviewer, Student Poster Session for Academic Festival
2015–2016	Member, Faculty Development Advisory Committee
2016–	Member, Dean's Grant Review Committee

Doctoral Dissertation Committee Member

Student	Student's Program	Deg	Year	Role
Completed - Measurement, Evaluation, & Statistics				
Xinyu Ni	Measurement & Evaluation	EdD	2018	Second Reader
Bright Nsowaa	Measurement & Evaluation	PhD	2017	Second Reader
Lauren Fellers	Measurement & Evaluation	PhD	2016	Third Reader
Huacheng Li	Measurement & Evaluation	PhD	2016	Second Reader
Nicole DiCrecchio	Measurement & Evaluation	PhD	2015	Second Reader
Completed - Other Programs				
Toi Sin Arvidsson	Developmental Psychology	PhD	2018	Third Reader/Chair
Melissa Cesarano	Cognitive Science	PhD	2018	Second Reader
Yuchen Shi	Cognitive Science	PhD	2018	Third Reader/Chair
Ahram Choi	Instructional Technology	EdD	2018	Third Reader/Chair
Corinne Galgay	Counseling Psychology	PhD	2018	Third Reader/Chair
Yang Jiang	Cognitive Science	PhD	2018	Fourth Reader
Laura Malkiewich	Cognitive Science	PhD	2018	Second Reader
Aston McCullough	Kinesiology	PhD	2018	Second Reader
Marissa Morin	Developmental Psychology	PhD	2018	Second Reader
Melissa Zrada	Cognitive Science	PhD	2018	Second Reader
Leigh Boyd	Cognitive Science	PhD	2017	Second Reader
Vincent Bulone	Mathematics Education	EdD	2017	Outside Reader
Cheng-Ling Chen	Applied Linguistics & TESOL	EdD	2017	Third Reader/Chair
Chienwen Kao	Clinical Psychology	PhD	2017	Second Reader
Yang Liu	Cognitive Science	PhD	2017	Second Reader
Matteo Margaroli	Clinical Psychology	PhD	2017	Second Reader
Chun Hao Chang	Instructional Technology	EdD	2016	Outside Reader
Laura Guerra	Health Education	EdD	2016	Third Reader/Chair
Jacob Sawyer	Counseling Psychology	PhD	2016	Outside Reader
Jared Boyce	Educational Leadership	PhD	2015	Outside Reader
Adrienne Mercer	Health Education	EdD	2015	Outside Reader
Lia Papathomas	Developmental Psychology	PhD	2015	Third Reader/Chair
Jared Jax	Instructional Tech & Media	EdD	2014	Outside Reader
Nathaniel Olson	Music & Music Education	EdD	2014	Outside Reader
Julia Zavala	Developmental Psychology	PhD	2014	Second Reader

In Progress - Measurement, Evaluation, & Statistics

Hedyeh Ahmadi	Measurement & Evaluation	PhD		Third Reader

In Progress - Other Programs

Heidi Banerjee	Applied Linguistics & TESOL	EdD	Fourth Reader
Nirmaliz Colon-Acosta	Cognitive Science	PhD	Second Reader/Chair
Allison Faye	Interdisciplinary Studies	EdD	Third Reader/Chair
Geremy Grant	School Psychology	PhD	Third Reader
Kimberly Hinman	Counseling Psychology	PhD	Fourth Reader
Marianna Lamnina	Cognitive Science	PhD	Third Reader
Kan Long	Clinical Psychology	PhD	Second Reader
David Lynch	Clinical Psychology	PhD	Third Reader
Ceren Sönmez	Clinical Psychology	PhD	Third Reader
Gregory Youdan	Movement Science	PhD	Second Reader/Chair

Teaching

Teachers College, Columbia University

2014 – 2017 **HUDM 4125 - Statistical Inference**, Class sizes: 18, 57, 40, 18.

2014 – 2019 **HUDM 5026* - Intro to Data Analysis and Graphics in R**, Class sizes: 18, 19, 19, 24.

2014 – 2019 **HUDM 5123 - Linear Models and Experimental Design**, Class sizes: 32, 76, 77, 75, 26, 43.

2016 – 2019 **HUDM 5133 - Causal Inference and Program Evaluation**, Class sizes: 37, 20.

2018 – 2019 **HUDM 5150 - Capstone, Careers, and Communication**, Class sizes: 11.

2014 – 2016 **HUDM 6026* - Computational Statistics**, Class sizes: 23, 40, 62.

2017 – 2017 **HUDM 6122 - Multivariate Analysis**, Class sizes: 36.

*Denotes a course I designed.

University of Wisconsin–Madison

2012 – 2013 **ED PSYCH 773 - Factor Analysis, Multidimensional Scaling and Cluster Analysis**.

Stephen F. Austin High School, Austin Independent School District, Austin, TX

2002 – 2007 **High School Math Teacher**.

2003 – 2007 **Founded and Directed AP Statistics Program**.

2005 – 2007 **Chair, Math Department**.

Binghamton University

2002 – 2002 **Calculus I**.

Awards

- 2013 Graduate Student Peer Mentor Award in recognition of excellence in mentoring fellow students
- 2012 travel award recipient from the Society for Multivariate Experimental Psychology.
- 2012 recipient of the Genevieve Gorst Herfurth Honorable Mention Award for outstanding research in social studies.
- 2011-2012 recipient of the James B. and Susan Solie Patterson Graduate Student Scholarship.
- 2010 finalist (top four of more than thirty) for 2010 Best Poster Award, International Meeting of the Psychometric Society, Athens, GA.