

Sanford R. Student

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Position

Assistant Professor, Educational Statistics and Research Methods | School of Education, College of Education and Human Development, University of Delaware | 2023-present

- Resident faculty, University of Delaware Data Science Institute
- Faculty affiliate, Center for Research in Education and Social Policy
- Faculty, Ph.D. in Education and Social Policy

Education

Ph.D., Research and Evaluation Methodology | School of Education, University of Colorado Boulder | May 2023 | Boulder, CO |

Dissertation: *Bridging gaps between psychometric research and practice in U.S. K-12 education (three article model)*

- Advisors: Drs. Derek Briggs (dissertation committee chair) and Benjamin Shear

A.B. Philosophy & A.B. Computer Science | May 2013 | Brown University | Providence, RI

Note: University of Delaware student and postdoc coauthors listed in *italics*.

Peer-Reviewed Publications

- *Ramirez, A.G., Patt, R., Delgado, A., Levine, D., Student, S.R., Hirsh-Pasek, K., de Villiers, J., Iglesias, A. and R.M. Golinkoff (2025). A new screener predicts toddlers' language development from age 2 to 3: The QUILS:TOD. *Infant Behavior and Development* (78). Advance online publication.*
- **Student, S.R.**, Briggs, D.C. and L. Davis (2024). Growth across grades and common item grade alignment in vertical scaling using the Rasch model. *Educational Measurement: Issues and Practice*. Advance online publication. <https://doi.org/10.1111/emip.12639>
- **Student, S.R.** (2024). Growth on 2019 state achievement tests: Empirical benchmarks and the role of scale choice. *Journal of Research on Educational Effectiveness*. Advance online publication. <https://doi.org/10.1080/19345747.2024.2360534>
- Deverel-Rico, C., Furtak, E.M., **Student, S.R.**, and A. Burkhardt (2024). How can crosscutting concepts organize formative assessments across science classrooms?

Results of a video study. *Education Sciences*, 14(10).
<https://doi.org/10.3390/educsci14101060>

- **Student, S.R.** & Gong, B. (2022). Supporting the interpretive validity of student-level claims in science assessment with tiered claim structures. *Educational Measurement: Issues and Practice*, 41(4). <https://doi.org/10.1111/emip.12523>
- **Student, S.R.** (2022). Vertical scales, deceleration, and empirical benchmarks for growth. *Educational Researcher*, 51(8). <https://doi.org/10.3102/0013189X221105873>
- **Student, S.R.** (2022). Appraising traditional and purpose-built person fit statistics' power to detect cheating. *Chinese/English Journal of Educational Measurement and Evaluation*, 3(1). <https://doi.org/10.59863/GYPV1534>

Preprints and Papers under Review and Revision

- Shores, K. and **Student, S.R.** Making the grade: Accounting for course selection in high school transcripts with item response theory. Available as preprint at *EdWorkingPapers* (<https://edworkingpapers.com/ai24-1109>) and under review at *Journal of Human Resources* (Authors listed by economics convention, alphabetically as equal contributors; corresponding author is S.R. Student).
- **Student, S.R.**, Shear, B.R., and W. Read. Communicating effect sizes to teachers: A replication in the U.S. *AERA Open*. (Registered Report; under review).
- McLean, L., **Student, S.R.**, Granger, K., Chow, J. and E. Hart. Exploring the directionality of emotional transmission between elementary teachers and students across content areas. *Journal of Educational Psychology* (Under second review).
- Lee, H.R., **Student, S.R.**, Rutherford, T., Collie, R.J., and A.C. Bart. Exploring domain-specific and course-specific latent profiles of motivation in computer science. *Learning and Individual Differences* (Under second review).
- Saylor, A., **Student, S.R.** and A. Lanzi. Recognition vs. ability to use external aids: An exploratory item response analysis of the Functional External Memory Aid Tool (FEMAT). *Journal of Speech Language and Hearing Research* (Under first review).
- Briggs, D.C., Buchbinder, N., Cox, O., Davis, L., McClure, K., Minchen, N., **Student, S.R.**, and S. Wellberg. Visualizing and reporting content-referenced growth on a learning progression. *Educational Assessment* (Under first review; note - all authors after first listed in alphabetical order as equal contributors).

Selected Papers under Development

- **Student, S.R.** Strengthening cross-grade comparisons on a vertical scale using moderated nonlinear factor analysis.
- **Student, S.R.** & Snipes, J. Investigating score inflation in contemporary U.S. state testing.
- **Student, S.R.** & Read, W. Are interval scales using the Rasch model plausible for researchers?
- **Student, S.R.**, Gilbert, J., Eze, J. and B. Domingue. Instrumental variables regression with heterogeneous item-level effects: fixed and random item effects approaches.
- **Student, S.R.** & McCormick, E.M. An NCME ITEMS module on moderated nonlinear factor analysis (under development in collaboration with S. Kim, NCME ITEMS editor).

Selected Grants and External Funding

Submitted 2023

- Barnes, T. (Principal Investigator). *Emotion Mastery Inventory*. Assessment for Good (as co-PI; unfunded).

2024

- **Student, S.R.** (PI). *Validating Vertical Scales as Measures of Growth Using Moderated Nonlinear Factor Analysis*. Institute of Education Sciences (R305B240013; \$80,000).
- **Student, S.R.** (PI). *Dynamic Measurement Project Work*. Curriculum Associates (\$23,000).
- **Student, S.R.** (PI). *Schools, Summers, Slopes: Accurately Modeling Academic Growth in the Study of School-level Inequality*. National Academy of Education/Spencer Foundation Postdoctoral Fellowship (submitted).
- Henry, G. (PI). *The Delaware Early Literacy Research Practice Partnership*. WT Grant Foundation (as Key Personnel; funded).
- May, H. (PI). *Enhancing Organizational Data-Driven Decision Making through Modernization of a Statewide School Climate Survey Platform*. Institute of Education Sciences (as co-PI; submitted).
- Golinkoff, R. (PI). *A Unique Exploration to Identify Children with Developmental Language Disorder*. National Institutes of Health (as co-Investigator; resubmitted fall 2024).
- Golinkoff, R. (PI). *Developing the DASAL: Digital Assessment of Spatial Assembly and Spatial Language*. Institute of Education Sciences (as KP; resubmitted fall 2024).

Selected Professional Reports and Other Written Works

- Ihlenfeldt, S.D., **Student, S.R.**, Lyons, S., Dadey, N., Forte, E., & P. Winter (2024). *Enhancing Peer Review: Supporting Innovation in State Assessment Systems*. Lyons Assessment Consulting and Foresight Law and Policy. <https://lyonsassessmentconsulting.com/resource/recommendations-for-supporting-innovative-state-assessment-systems/>
- Briggs, D.C., Cox, O., **Student, S.R.** & E. Whitfield* (2024). *Teacher perspectives on the content-referenced growth reporting prototype: Findings from interviews*. Center for Assessment, Design, Research and Evaluation (CADRE). <https://www.colorado.edu/cadre/2024/02/20/teacher-perspectives-content-referenced-growth-reporting-prototype-findings-interviews>. *Authors listed in alphabetical order, all contributed equally to the writing of report.
- **Student, S.R.**, Lyons, S. & French, D. (2023). *Performance assessment: A vehicle for improving the utility and validity of local and state assessment systems*. Education Commonwealth Project. <https://www.mciea.org/s/Performance-assessment-A-vehicle-for-improving-the-utility-and-validity-of-local-and-state-assessmen.pdf>
- Lyons, S. & **Student, S.R.** (2023). *A framework for reimagining school accountability*. Lyons Assessment Consulting. https://www.lyonsassessmentconsulting.com/assets/files/Lyons-Student_AFrameworkforReimaginingSchoolAccountability.pdf

- Wellberg, S., Briggs, D. C., & **Student, S. R.** (2023). *Big ideas in the understanding of fractions: A learning progression*. Center for Assessment, Design, Research and Evaluation (CADRE). <https://www.colorado.edu/cadre/2023/03/22/big-ideas-understanding-fractions-learning-progression>
 - Lyons, S. and **Student, S. R.** (2022). *Leaps for Equitable, 21st Century Learning: 2022 Technical Report*. Lyons Assessment Consulting and Transcend. <https://www.lyonsassessmentconsulting.com/assets/files/Leaps-StudentVoiceSurveyTechnicalManual-June2022.pdf>
 - **Student, S.R.** (2022). Making large-scale science assessment meaningful. *Next Gen Navigator*. <https://www.nsta.org/blog/making-large-scale-science-assessment-meaningful>
 - Lyons, S., Hinds, B. F., **Student, S. R.**, & Denker, H. (2022). *ISR Language Evaluation: Gathering Stakeholder Feedback to Make Community-Informed Program Improvements*. Cognia and Lyons Assessment Consulting. https://www.lyonsassessmentconsulting.com/assets/files/ISR-LanguageEvaluationReport_ADA002.pdf
 - Shear, B.R., Diaz-Bilello, E., **Student, S. R.**, and 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/sites/default/files/attached-files/evaluation_of_colorado_school_turnaround_network_and_school_turnaround_leadership_development_grants-descriptive_analysis_of_2015-2020_cohort_feb_2021.pdf
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Conference Papers and Presentations

- **Student, S.R.** (2025). *Strengthening Cross-Grade Comparisons on a Vertical Scale with Regularized DIF Analysis*. Paper accepted for presentation at the NCME Annual Meeting, Denver, CO.
- **Student, S.R.** and Snipes, J. (2025). Is There Evidence of Score Inflation on SBAC? Paper accepted for presentation at the AERA Annual Meeting, Division H, Denver, CO.
- **Student, S.R.**, Shear, B.R. & W. Read (2025). *Communicating Effect Sizes to Teachers: A Replication in the U.S.* Paper accepted for presentation at the NCME Annual Meeting, Denver, CO.
- **Student, S.R.** & Briggs, D.C. (2025). *A Self-Contained Empirical Bayes Approach to Weekly Scoring*. In Rome. L. (session organizer), *Dynamic Measurement of Student Proficiency for Continuous Assessment*. Paper accepted for presentation at the NCME Annual Meeting, Denver, CO.
- Rome. L., **Student, S.R.** and T. Daisher (2025). *Growth Modeling for Bayesian Priors in Repeated Measurement of Student Ability*. Paper accepted for presentation at the NCME Annual Meeting, Denver, CO.
- Vu, L. & **Student, S.R.** (2025). *An Item-Level Investigation of the Impact of Kumon*. Poster accepted for presentation at the NCME Annual Meeting, Denver, CO.
- **Student, S.R.** (2025, January). *Strengthening Cross-Grade Comparisons on a Vertical Scale Using Moderated Nonlinear Factor Analysis*. Poster prepared for IES PI Meeting, Washington, D.C. (cancelled due to inclement weather).

- **Student, S.R.** (2024, April). *Validating, Calibrating and Linking Vertical Scales with Moderated Item Response Theory*. Paper presented at the NCME Annual Meeting, Philadelphia, PA.
- **Student, S.R.**, Briggs, D.C. & Davis, L. (2024, April). *Vertical scale design and years of learning*. Paper presented at the NCME Annual Meeting, Philadelphia, PA.
- **Student, S.R.**, Banjanovic, E., Minchen, N., Rome, L. & Daisher, T. (2024, April). *Item parameter estimation from short student quizzes*. In Rome, L. (session organizer), *Assessment and Instruction Coherence for Dynamic Measurement of Student Proficiency*. Presented at the NCME Annual Meeting, Philadelphia, PA.
- **Student, S.R.** (2023, December). *Empirical tests of the assumptions underlying growth measurement in vertical scaling*. In Hartel, D. and Kanopka, K. (session organizers), *Applied statistical and psychometrics issues in measurement*. Presentation at the Conference on Computational and Methodological Statistics, Berlin, DE.
- **Student, S.R.** (2023, April). *What's in a year: Updated annual growth trends on vertically scaled tests*. Paper presented at the NCME Annual Meeting, Chicago, IL.
- **Student, S.R.** & Briggs, D.C. (2023, April). *Investigating the relationship between linking direction and growth magnitudes in vertical scaling*. Paper presented at the International Objective Measurement Workshop, Chicago, IL.
- Furtak, E.M., Deverel-Rico, C. & **Student, S.R.** (2023, April). *How can crosscutting concepts organize formative assessments across science classrooms? Results of a video study*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Chicago, IL.
- **Student, S. R.**, Lyons, S., Shoukry, Y., Nitkin, D. & Picucci, A. (2022, October). *Leaps: an assessment system for tracking school transformation and student learning experiences*. Paper presented at the Northeast Educational Research Association Annual Conference, Trumbull, CT.
- **Student, S. R.** (2022, April). *Calibrating and validating the uses of a vertical scale in a computerized adaptive setting*. In Briggs, D.C. (session organizer), *A Content-Referenced Approach to the Interpretation of Growth*. Presentation given at the NCME Annual Meeting, San Diego, CA.
- Lyons, S., Hinds, F., **Student, S. R.** & Denker, H. (2022, April). *Developing culturally responsive items for an urban district interim assessment program*. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Diego, CA.
- Wellberg, S., Briggs, D.C., & **Student, S. R.** (2022, April). *Synthesizing big ideas in the understanding of fractions: A learning progression*. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Diego, CA.
- **Student, S. R.** (2021, October). *Reviewing the implications of vertical scaling issues for empirical growth benchmarks*. Paper presented at the Northern Rocky Mountain Education Research Association Annual Meeting, Ketchum, ID.
- **Student, S. R.** (2021, July). *A comparison of the power of four traditional and four purpose-built person fit statistics to detect cheating*. Poster presented at the International Meeting of the Psychometric Society, conducted remotely.
- **Student, S. R.** & Gong, B. (2021, June). *Tiered claims: A new approach to claims about students in NGSS assessment*. Poster presented at the annual meeting of the National Council on Measurement in Education (NCME), conducted remotely.

- Deverel-Rico, C. & **Student, S. R.** (2021, June). *Towards an approach for evaluating equity in UTeach*. Presentation at the UTeach STEM Educators Virtual Conference Equity and Racial Justice in STEM Teacher Development Virtual Summit.
 - **Student, S. R.** & Gong, B. (2021, April). *Supporting the interpretive validity of student-level claims in science assessment with tiered claims structures*. Paper presented at the annual meeting of the American Educational Research Association (AERA), conducted remotely.
 - **Student, S. R.**, Briggs, D., Toutkoushian, E. & Confrey, J. (2020, April). *Keeping it on the level: Using learning trajectories for diagnostic inferences*. Paper presented at the 2020 International Objective Measurement Workshop, Berkeley, CA (conference conducted remotely in 2021).
 - **Student, S. R.** & Burkhardt, A. (2019, September). *Making inferences from PBICs to the learning progression*. In Briggs, D.C. (session organizer), *Learning Progressions and NGSS*. Presentation given at the NCME Special Conference on Classroom Assessment, Boulder, CO.
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Invited talks

- **Student, S.R.** (Winter 2025; upcoming). Strengthening cross-grade comparisons on a vertical scale using moderated nonlinear factor analysis. Presentation to the University of Maryland Monday Symposium in Measurement and Statistics.
 - **Student, S.R.** (2022, November). Studies in student growth as context for effect sizes. Presentation to the University of Delaware School of Education.
 - Shear, B. R. & **Student, S. R.** (2022, March). Guidance on effect size interpretation in educational research: Part 2. Presentation to the Association of Colorado Educational Evaluators.
 - Shear, B. R. & **Student, S. R.** (2022, February). Guidance on effect size interpretation in educational research. Presentation to the Association of Colorado Educational Evaluators.
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Research and Relevant Work Experience

Prior research roles

Doctoral Researcher | Center for Assessment Design, Research and Evaluation | August 2018-May 2023 | Boulder, CO

Summer intern | National Center for the Improvement of Educational Assessment | June 2020-August 2020 | Dover, NH (completed remotely due to COVID-19)

Prior consulting roles

Research Associate | Lyons Assessment Consulting | July 2021-July 2023 | Wayland, MA (remote position)

Lead researcher, Commission on the Future of Legal Education Bar Exam study | American Bar Association | May 2019-January 2020 | Boulder, CO

Relevant prior professional experience

Software Engineer | edX | February 2016-August 2018

Teaching Experience

School of Education, University of Delaware

Instructor of Record | EDUC 872 Advanced Educational Measurement | Fall 2024

- Fully redesigned course
- Course/instructor overall ratings: 5.00/5.00

Instructor of Record | EDUC 865 Educational Measurement Theory | Spring 2024

- Fully redesigned course
- Course/instructor overall ratings: 4.92/5.00

Instructor of Record | EDUC 867-011 Survey Design for the Social Sciences | Fall 2023

- New course
- Course/instructor overall ratings: 4.73/4.82

School of Education, University of Colorado Boulder

Graduate Teaching Assistant | Quantitative Methods I | Fall 2019

Computer Science Department, Brown University

Undergraduate Teaching Assistant | Introduction to Object-Oriented Programming in Java | Fall 2010, Fall 2011

Service and review work

Professional organization service

National Council on Measurement in Education

- Committee Chair (2024-26), NCME Archives Committee
- Session Chair and Discussant, 2024 NCME Annual Meeting
- Reviewer, Session Chair and Discussant, 2023 NCME Annual Meeting
- Member (2023-2024), NCME Archives Committee
- Graduate student member (2022-23), NCME Archives Committee
- Session Chair, 2022 NCME Annual Meeting
- Graduate student member and reviewer (2021 and 2022), NCME Career Contributions Award Committee
- Conference Room Manager, 2021 NCME Annual Meeting (conducted virtually)

American Educational Research Association

- Reviewer, Test Validity SIG, 2024 AERA Annual Meeting
- Reviewer, Test Validity SIG, 2023 AERA Annual Meeting
- Reviewer, Division D, 2022 AERA Annual Meeting
- Reviewer, Test Validity SIG, 2022 AERA Annual Meeting

Other professional organization service

- Discussant, 2022 Northeastern Educational Research Association Annual Conference
- Session chair, 2022 Northeastern Educational Research Association Annual Conference
- Reviewer, 2022 Northeastern Educational Research Association Annual Conference
- Reviewer, 2021 Northern Rocky Mountain Education Research Association Annual Conference

Journal peer review service

- *Journal of Educational Measurement*
- *Educational Measurement: Issues and Practice*
- *Journal of Research on Educational Effectiveness*
- *Metacognition and Learning*

Department, state and national service

University of Delaware

- Member, Faculty Affairs Committee (2023-present)
- Search committee member, Educational Statistics and Data Science assistant professor (2023-2024)
- Resident Faculty, Data Science Institute (2023-present)

State of Delaware

- Member, Delaware Accountability System Growth Component Working Group (2024)

- Hiring Committee Member, Psychometric Associate Position (2024-present; search ongoing)

State of Maryland

- Member, Maryland State Department of Education Technical Advisory Committee (2024-present)

Prior institutions

- Member, student committee, University of Colorado Boulder School of Education doctoral core curriculum revision (2022)
- Co-creator, introductory R performance task for incoming doctoral students (2021)
- Reviewer, Schools of Opportunity Recognition Program (2019)

Honors

- Selected attendee, American Institutes for Research/National Center for Educational Statistics Winter 2020 National Assessment of Educational Progress Data Training Workshop, Arlington, VA.
 - Nominee, 2024 National Council on Measurement in Education Dissertation Award.
 - Co-recipient, 2024 American Education Research Associated Classroom Assessment Special Interest Group Early Career Paper Award (with C. Deverel-Rico, A. Burkhardt).
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