

Ryan Seth Jones

Middle Tennessee State University
College of Education
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EDUCATION

Ph.D. Mathematics & Science Education
Vanderbilt University
2015

Dissertation Title: *A Construct Modeling Approach to Measuring Fidelity in Data Modeling Classrooms*

Committee Members:

Richard Lehrer, Vanderbilt University (Chair)
Ilana Horn, Vanderbilt University
Leona Schauble, Vanderbilt University
Mark Lipsey, Vanderbilt University
Mark Wilson, University of California, Berkeley

M.Ed. Mathematics Education
Vanderbilt University
2010

B.S. Mathematics Education
Tennessee Technological University
2004

PUBLICATIONS

- Rosenberg, J. M., Lawson, M. A., Anderson, D. J., Rutherford, T., & **Jones, R. S.** (accepted, in press). Making data science “count”: Data science and Learning, Design, and Technology research. In E. Romero-Hall (Ed.), *Research Methods in Learning Design & Technology*. Routledge: New York, NY.
- Jones, R.S.**, Jia, J., & Bezaire, J. (accepted, in press). Giving birth to inferential reasoning. *Mathematics Teacher: Learning and Teaching PK–12*.
- Smith, W. M., Callahan, K. M., Strayer, J. F., **Jones, R. S.**, & Augustyn, L. C. (Eds.). (2019). Proceedings of the eighth annual Mathematics Teacher Education Partnership conference. Washington, DC: Association of Public and Land-grant Universities.
- Teeters, L. A., Singer-Gabella, M., **Jones, R. S.**, Escarfuller, J., & Heerman, W. J. (2018). Operationalising agency: a personalised approach to public health. *Gateways: International Journal of Community Research and Engagement*, 11(1), 73-89.
- Arnold, P., Confrey, J., **Jones, R. S.**, Lee, H.L., & Pfannkuch, M. (2018). Statistics Learning Trajectories. In D. Ben-Zvi, K. Makar, & J. Garfield (Eds.), *International handbook of research in statistics education*, Springer International Handbooks of Education. Springer, Cham.

- Jones, R. S.**, Lehrer, R., & Kim, M. J. (2017). Critiquing statistics in student and professional worlds. *Cognition and Instruction*, 35(4), 1-20.
- Confrey, J., **Jones, R. S.**, & Gianopulos, G. (2015). Challenges in Modeling and Measuring Learning Trajectories. *Measurement: Interdisciplinary Research and Perspectives*, 13(2), 100-105.
- Lehrer, R., Kim, M.J., & **Jones, R. S.** (2011). Developing conceptions of statistics by designing measures of distribution. *ZDM*, 43(5)

CONFERENCE PRESENTATIONS

- Jones, R.S., Grinath, A., Google, A., & Jia, Z. (2020). *Engaging students with uncertainty through repeated measure of biological qualities*. American Educational Research Association Annual Meeting, San Francisco, CA.
- Jones, R.S. & Rosenberg, J. (2020). *Latent Class Modeling of Whole Class Discussions about Data, Statistics, and Probability*. American Educational Research Association Annual Meeting, San Francisco, CA.
- Lovett J., Jones, R.S., & Duncan, M. (2019). *Teachers' engagement in a competing models informal inference task*. Psychology of Mathematics Education North America Annual Conference, St. Louis, MO.
- Weiland, T., Mojica, G., Engledowl, C., Jones, R.S. (2019). Statistics education: (re)framing past work for taking a holistic approach to the future. Psychology of Mathematics Education North America Annual Conference, St. Louis, MO.
- Reid, J. W., Quinn, C. M., Grinath, A. S., Jones, S., & Jia, Z. (2019). *Small teaching practices for problematizing the quantitative nature of biology in non-science majors biology laboratories*. Poster presented at National Association for Research in Science Teaching Annual Conference, Baltimore, MD.
- Grinath, A., Jones, R.S., Whitworth, C., Google, A., Morphis, H. (2019). *3D Biology Lessons: Designing Across Biology, Data Modeling, and Argumentation Learning Goals*. TN STEM Education Research Conference. Murfreesboro, TN.
- Jones, R.S., Grinath, A., Jia, Z., Czap, L., & Google, A. (2019). *Leveraging Students' Ideas about Measurement and Variability in Biology*. TN STEM Education Research Conference. Murfreesboro, TN.
- Jones, R.S., Lovett, J., Google, A., & Duncan, M. (2019). *Middle School Teachers' Statistical Inventions and Inferences about Variability*. Association of Mathematics Teacher Educators, Orlando, FL.
- Lovett, J., Jones, R.S., Google, A., Matuszewski, A. (2019). *Blending Traditional Professional Development with a MOOC-ED to Support Middle School Teachers in Teaching Statistics*. Association of Mathematics Teacher Educators, Orlando, FL.
- Brady, C., Jones, R.S., Nichols, I., & Wisittanawat, P. (2018). *Positive Interdependence Through Data Modeling*. Psychology of Mathematics Education North America Annual Conference, Greenville, SC.
- Reid, J., Grinath, A., Jones, R.S., Quinn, C., & Jia, Z. (2018). In the midst of variability: Small changes to foreground the quantitative nature of biology. Poster presented at National Association of Biology Teachers Annual Professional Development Conference, San Diego, CA.

- Jones, R.S., Lovett, J., Google, A., & Matuszewski, A. (2018). *Integrating face-to-face professional development and a MOOC-Ed to develop teachers' statistical knowledge for teaching*. Conference presentation at TN STEM Education Research Conference. Murfreesboro, TN.
- Jones, R.S., (2017). *Visualizing Practice with Data*. Psychology of Mathematics Education North America Annual Conference, Indianapolis, IL.
- Jones, R.S., Lovett, J., Google, A., & Matuszewski, A., (2017). *Integrating Face-to-face Professional Development and a MOOC-ED to Develop Teachers' Statistical Knowledge*. Psychology of Mathematics Education North America Annual Conference, Indianapolis, IL.
- Jones, R. S., Jia, J. (2017). *Supporting students' inferential reasoning through building, testing, and revising models*. Tennessee STEM Education Conference, Murfreesboro, TN.
- Jones, R. S., (2017). *What Does STEM Literacy Mean, and How Do We Know If Students Are Developing It?*. AdvancED TENNESSEE/Middle Tennessee State University's STEM SUMMIT II, Murfreesboro, TN.
- Jones, R. S., (2017). *Measuring Students' Data Modeling Conversations*. National Council of Teachers of Mathematics Research Conference, San Antonio, TX.
- Confrey, J., Jones, R. S., Gianopulos, G. & Shah, M. (2016). *Scaffolding coherence in a digital learning system accessing open source mathematics curriculum materials*. Paper presentation at the American Educational Research Association Annual Conference, Washington, D.C.
- Confrey, J., Jones, R. S., & Gianopulos, G. (2016). *Challenges in modeling and measuring learning trajectories*. Paper presentation at National Council of Measurement in Education 2016, Washington, D.C.
- Confrey, J., Shah, M., Hennessey, M., & Jones, R. S. (2016). *Linking digital diagnostic assessments to indicators on learning trajectories to meet students' diverse needs*. Paper presentation at the National Council of Supervisors of Mathematics Annual Conference, Oakland, CA.
- Jones, R. S., Confrey, J., Hennessey, M., Shah, M. (2016). *Looking for student thinking in middle grades data and statistics*. Paper presentation at the National Council of Supervisors of Mathematics Annual Conference, Oakland, CA.
- Jones, R. S. & Confrey, J. (2015). *Making sense of data and variability with students*. Presentation at the North Carolina Council of Teachers of Mathematics, Greensboro, NC.
- Jones, R. S. & Confrey, J. (2015). *Learning maps that link CCSS to student thinking*. Presentation at the North Carolina Council of Teachers of Mathematics, Greensboro, NC.
- Shah, M., Confrey, J., & Jones, R. S. (2015). *Coherent learning experiences: Accessing internet resources through a learning map aligned to the common core standards*. Paper presentation at the Psychology of Mathematics Education North American Chapter Annual Conference, East Lansing, MI.
- Jones, R. S. (2014). *Fidelity of implementation in data modeling classrooms: a construct driven approach to fidelity measurement*. Paper presentation at the National Council of Teachers of Mathematics Research Conference, New Orleans, LA.
- Lehrer, R., Jones, R. S., & Kim, M. J. (2014). *Model-based informal inference*. Paper presented at the 9th International Conference on Teaching Statistics, Flagstaff, AZ.
- Lehrer, R., & Jones, S. (2014). *Construct maps as boundary objects in the trading zone*. In W. P. Fisher Jr. (Chair), Session 3-A: Rating Scales and Partial Credit, Theory and Applied. International Objective Measurement Workshop. Philadelphia, PA.
- Jones, R.S. (2013). *Validity as Process: A Construct Driven Measure of Fidelity of Implementation*. Paper presentation at the Society for Research on Educational Effectiveness, Washington, D.C.
- Jones, R. S. (2013). *A construct modeling approach to measuring fidelity*. In R. Lehrer (chair), A learning progression emerges in a trading zone of professional community and identity.

Symposium conducted at the 2013 meeting of the American Educational Research Association, San Francisco, CA.

Lehrer, R., Jones, R.S., Phaff, E., & Shinohara, M. (2013). *Modeling data: a learning progression for supporting the development of statistical reasoning*. In M. Wilson (chair), Building learning progressions for math and science learning. Symposium conducted at the 2013 meeting of the American Educational Research Association, San Francisco, CA.

Lehrer, R. & Jones, R. S. (2012). *Spadework prior to the conduct of an efficacy study*. Presentation for IES principal investigator meeting, Washington, D.C.

Jones, R. S., Lehrer, R., & Kim, M.J. (2012). *Professional and student visions of statistics*. In R. Lehrer (chair), Designing for and representing the development of epistemic practices in classroom communities. Symposium conducted at the 2012 meeting of the American Educational Research Association, Vancouver, B.C.

Jones, S. R. & Kim, M. J. (2011). *Enacting a New Curriculum: A Teacher's First Attempt with Data Modeling*. Poster presented at the 2011 meeting of the National Council of Teachers of Mathematics Research Pre-session, Indianapolis, IN.

AWARDS

Otto Bassler Award for Outstanding Dissertation

Awarded by the Teaching, Learning, & Diversity department at Peabody College, Vanderbilt University

Bonsal Applied Education Dissertation Research Grant

Awarded by Dean Camilla Benbow, Peabody College, Vanderbilt University
2013

Edmund W. Gordon MacArthur Foundation/ETS Fellowship For 21st Century Learning and Assessment

Awarded by Jim Gee, University of Arizona, & Robert Mislevy, ETS
2013

Experimental Education Research Training Pre-doctoral Fellowship Award

Awarded by IES Training Program PIs David Cordray & Dale Farran, Vanderbilt University
2010

Peabody Dean's Tuition Award

Awarded by Dean Camilla Benbow, Peabody College, Vanderbilt University
2009

PROFESSIONAL EXPERIENCE

Assistant Professor

Middle Tennessee State University
August 2016 – Present

Research Scientist

North Carolina State University
January 2015 – May 2016

Research Assistant

Vanderbilt University
June 2009 – December 2014

Middle School Mathematics Teacher

University School Nashville
2009 – 2010
High School Mathematics Teacher
Cleveland High School
2005 – 2009
High School Teacher
Upperman High School
2004 – 2005

FUNDED RESEARCH PROJECTS

Principal Investigator

CAREER: Supporting Model Based Inference as an Integrated Effort Between
Mathematics and Science
National Science Foundation Faculty Early Career Development (CAREER) Program:
DRK-12 (\$703,903)
February, 2020 – January, 2025

Principal Investigator

Group Based Collaborative Computing to Support Modeling and Argumentation in
Large Lecture Classes
MTSU ITD Technology Innovation Grant (\$21,980)
2019

Co-Principal Investigator

3D Biology Learning
MTSU Library, Improving technology with teaching grant (\$2,500)
2018

Co-Principal Investigator

Engaging Students in Data Modeling
Tennessee Higher Education Commission, ITQ grant (\$75,000)
2017

RESEARCH EXPERIENCE

Learning Scientist/Math Educator

Scaling Up Digital Design Studies: Learning Maps
Gates Foundation development study
2015-Present

Edmund W. Gordon MacArthur Foundation/ETS Fellow

National mentoring fellowship led by Jim Gee (Arizona State University), Robert Mislevy
(ETS), and Edmund Gordon (Teacher's College, Columbia University)
2013-Present

Institute of Educational Sciences Predoctoral Fellow

Interdisciplinary research training program
2009-2014

Research Assistant

Formative Assessment Delivery System
IES funded measurement study
Principal investigator: Mark Wilson & (Co-PI) Richard Lehrer

2012-2014

Data Modeling Supports the Development of Statistical Reasoning
IES funded efficacy study
Principal Investigator: Richard Lehrer
2010-2014

Assessing Data Modeling
IES funded measurement project
Principal Investigators: Richard Lehrer, Leona Schauble, & Mark Wilson
2009-2011

TEACHING AND MENTORING EXPERIENCE

MTSU Teaching

SPSE 7070, Learning Theories in Math & Science Education Research
SPSE 7180, Qualitative Research and Evaluation Methods
SPSE 7220, Advanced Educational Technologies
SPSE 7010, Educational Research Methodologies
MSE 7800, Teaching and Learning Mathematics and Science
YOED 3550, Classroom Interactions
YOED 4050, Project-Based Instruction

Vanderbilt Teaching

MTED 2200, Mathematics for Elementary Teachers
TA for Dr. Melissa Gresalfi
Fall 2014
EDUC 3120, Learning and Instruction
TA for Dr. Melissa Gresalfi
Fall 2014
MTED 3640, Teaching and Learning Statistics and Probability in Middle Schools
Co-Taught with Emily Shahan
Spring 2013

Leadership Alliance Mentor

Mentored undergraduate student, Charles Wilkes, during summer research internship
Summer 2012

Vanderbilt Undergraduate Summer Research Fellowship Mentor

Mentored undergraduate student, Megan Wongkamalasai, during summer research
internship
Summer 2012

Middle School Mathematics Teacher

University School of Nashville
2008-2009

Secondary Mathematics Teacher

Cleveland High School, Cleveland TN
2005-2009
Upperman High School, Baxter TN
2004-2005

SERVICE

- MTSU Faculty Senate
2019-Present
- Undergraduate Research Experience and Creative Activity (URECA) Committee Chair
2019-Present
- Undergraduate Research Experience and Creative Activity (URECA) Committee Member
2018-Present
- Reviewer for American Educational Research Association Annual Conference
2018
- Reviewer for Psychology of Mathematics Education North America Conference
2016-2018
- Reviewer for American Educational Research Journal
2018
- Reviewer for Mathematical Thinking and Learning
2018
- Metro Nashville Public Schools STEAM Advisory Council
Council Member, Evaluation Sub-committee Member
2016-present
- Mathematics Teacher Education Partnership Representative for MTSU
MATH RAC member
2016-present
- MSE PhD Program Representative for MTSU College of Education
Concentration Director for Interdisciplinary Concentration
2016-present
- Reviewer for National Council of Teachers of Mathematics Research Conference
2016-2017
- Reviewer for Cognition and Instruction
2015
- Reviewer for NCTM Research Conference
2015
- Math Education Faculty Search Committee Member
2013-2014
- Doctoral Student Association Co-Chair
Department of Teaching and Learning, Peabody College
2013-2014
- Doctoral Student Association Faculty Meeting Representative
Department of Teaching and Learning, Peabody College
2013
- Student Teaching Assessment Panel Member
Department of Teaching & Learning, Peabody College
2011
- Peabody Honor Council Chair
Peabody College
2010