

Joshua M. Rosenberg

## Curriculum Vitae

Associate Professor, STEM Education  
Department of Theory and Practice in Teacher Education  
The University of Tennessee, Knoxville  
420 Claxton, 1122 Volunteer Blvd., Knoxville, TN 37996  
865-974-5973 | jmrosenberg@utk.edu

## Education

### Degrees

2018, PhD, Educational Psychology & Educational Technology  
Michigan State University

2012, MA, Education  
Michigan State University

2010, BS, Biology  
University of North Carolina, Asheville

### Additional Qualifications

2016, Graduate Certificate, Science Education  
Michigan State University

2010, Educator's License - Science and Biology, Teacher Licensure Program  
University of North Carolina, Asheville

## Professional Experience

2023-present, Associate Professor, STEM Education  
University of Tennessee, Knoxville

2018-2023, Assistant Professor, STEM Education  
University of Tennessee, Knoxville

2012-2018, Graduate Research and Teaching Assistant  
Michigan State University

2010-2012, Science Teacher (Biology and Earth Science)  
Shelby High School, Shelby, NC

2009-2010, Science Teacher Intern (Biology and Chemistry)  
C.D. Owen High School, Swannanoa, NC

## Additional Professional Affiliations

Faculty Fellow, College of Emerging and Collaborative Studies, University of Tennessee, Knoxville  
Faculty Fellow, Center for Enhancing Education in Mathematics and Sciences, University of Tennessee, Knoxville  
Faculty Fellow, Education Research & Opportunity Center, University of Tennessee, Knoxville  
Affiliated Researcher, AmplifyLearn.AI, University of Washington

## Fellowships and Awards

2024, Professional Promise in Research and Creative Achievement award, University of Tennessee, Knoxville  
2024, Lura Odland Excellence award, College of Education, Health, and Human Sciences, University of Tennessee, Knoxville  
2023-2024, Expanding Horizons Mid-Career Faculty Development Program, University of Tennessee, Knoxville  
2023, NSF CAREER awardee  
2023, Faculty Mentor, SEC Emerging Scholars Program Postdoctoral Researcher (Maryrose Weatherton)  
2023, Research Worth Reading Award, Research in Artificial Intelligence in Science Education Research Interest Group, National Association for Research in Science Teaching  
2023, Outstanding Graduate Research Mentor Award, Graduate Student Senate, University of Tennessee, Knoxville  
2022, Early Career Award, Technology as an Agent of Change in Teaching and Learning (TACTL) Special Interest Group (SIG), American Educational Research Association (AERA)  
2021, Best Poster Award, Fourteenth International Conference on Educational Data Mining  
2021-2022, Open Educational Resources (OER) Research Fellow, William and Flora Hewlett Foundation  
2021, Louie M. & Betty M. Phillips Faculty Support in Education Award, University of Tennessee, Knoxville (UTK)  
2021, Mentor, Summer Undergraduate Research Internship Program, Office of Undergraduate Research, UTK  
2020, Research Assistant Award, Office of Undergraduate Research, UTK  
2020, Southeastern Conference (SEC) Visiting Faculty Travel Grant Program (Host: Annelise Russell, Martin School of Public Policy, University of Kentucky)  
2019-2020, Initiative for the Future Faculty Development Program, UTK  
2019, Finalist, Association for Science Teacher Education John C. Park National Technology Leadership Institute Fellowship  
2017, Delia Koo Global Travel Fellowship, Michigan State University (MSU)  
2017, Michigan Virtual Learning Research Institute Dissertation Fellowship  
2017, Concord Consortium Data Science Educational Technology Fellowship  
2017, Council of Graduate Students Disciplinary Leadership Award, MSU  
2016, College of Education Alumni Fellowship, MSU

2016, Best Paper Award, Technological Pedagogical Content Knowledge SIG, Society for Information Technology and Teacher Education International Conference

2015, Cotterman Family Endowment for Education Summer Research Fellowship, MSU

2014, Outstanding Paper Award, Society for Information Technology and Teacher Education International Conference

2013, Massive Open Online Course Research and Development Fellowship, MSU

2009-2012, Burroughs Wellcome Fund Scholar, University of North Carolina, Asheville

## Grants

**\$7,335,845; \$6,248,084 as Principal Investigator [PI] or Co-PI**

## PI, Co-PI, and Co-I

2023-2028, PI, *CAREER: Creatively Reimagining Engagements with Data in Biology Learning Environments*, (\$846,612), NSF. NSF Grant No. 2239152.

2022-2025, Co-PI, *Computer Science for Appalachia: Expanding a research-practice partnership to integrate computer science and literacy in rural East Tennessee schools*, (\$999,980; with PI Lynn Hodge). NSF. NSF Grant No. 2219418.

2022-2024, Co-PI, *Broadening participation in introductory computer science: investigating self-assessment practices for increasing student learning and self-efficacy in two institutional contexts* (\$299,836; with PI Alex Lishinski). NSF. NSF Grant No. 2215245

2022-2023, Co-PI, *Launching a Micro-credential in Educational Data Analytics* (\$10,000; with Co-PI Louis Rocconi). University of Tennessee, Knoxville's College of Education, Health, and Human Sciences Strategic Investment Program.

2022-2025, Co-PI, *Quantifying the robustness of causal inferences: Extensions and applications*. (\$899,319.13; PI: Kenneth Frank, Michigan State University; UTK subcontract: \$105,727). Institute of Education Sciences.

2021-2022, PI, *Not only for scientists and engineers: Advancing Bayesian methods for pre-collegiate learners* (\$1,991), Supplemental funding to NSF Grant No. 193770 (Dear Colleague Letter: Research Collaboration Opportunity in Europe for NSF Awardees). National Science Foundation.

2020-2025, Co-I, *Imagining possibilities in post-secondary education and STEMM in rural Appalachia* (\$1,208,563), National Institutes of Health.

2020-2021, Co-PI, *Propelling teacher professional development through FAAST feedback on student epistemic views* (\$15,000; PI: Christina Krist, University of Illinois Urbana-Champaign). Technology Innovations in Educational Research and Design Pilot Projects Program.

2019-2021, PI, *Understanding the development of interest in computer science: An experience sampling approach* (\$346,688). National Science Foundation [NSF]. <http://picsul.utk.edu/> (NSF Grant No. 1937700)

2019-2021, Co-PI, *CS for Appalachia: A research-practice partnership for integrating computer science into East Tennessee schools* (\$252,453; PI: Lynn Hodge, UTK). NSF. (NSF Grant No. 1923509)

2019-2022, Co-PI, *Advancing computational grounded theory for audiovisual data from STEM classrooms* (\$1,313,855; PI: Christina Krist, University of Illinois Urbana-Champaign; UTK subcontract: \$101,469). NSF. <https://tca2.education.illinois.edu/> (NSF Grant No. 1920796)

2019-2020, PI, *Planting the seeds for computer science education in East Tennessee through a research-practice partnership* (\$13,200). Community Engaged Research Seed Program, UTK.

2018-2020, Co-PI, *Exploring how beginning elementary mathematics teachers seek out resources through social media* (\$8,820; PI: Stephen Aguilar). Herman & Rasiej K-5 Mathematics Initiative, University of Southern California.

## Senior Personnel

2020-2023, Senior Personnel, *Learning analytics in STEM education research institute* (\$933,150; PI, Shaun Kellogg, North Carolina State University; UTK subcontract: \$62,870. National Science Foundation (NSF), NSF Grant No. 2025090

2019-2022, Senior Personnel, *Medical entomology and geospatial analyses: Bringing innovation to teacher education and surveillance studies* (\$149,611; PI: Rebecca Trout Fryxell). United States Department of Agriculture - Agriculture and Food Research Initiative. (USDA Grant No. 2019-68010-29119) <https://www.megabitess.org/>

## Consultant and Advisory Board Member Roles

2023-2026, Data Science Assessment Consultant, *NSF AISL: Integrating Research and Practice: Reimagining Youth Community Science through Make-and-Take Data Sensing Kits*, NSF grant no. 2314089. Blikstein, P. & Perez, S. (PIs)

2023-2025, Advisory Board Member, *Integration of Computer-Assisted Methods and Human Interactions to Understand Lesson Plan Quality and Teaching to Advance Middle-Grade Mathematics Instruction*. Min Sun (PI). NSF Grant No. 2300291.

2023-2025, Advisor, *Sloan: Aligning Graduate Education and Workforce Opportunities: A Robust, Equity-Focused Landscape Scan of Computing Terminology*. Wofford, A., Perez-Felkner, L., & Staudt Willet, K. B. (PIs). Funded by Alfred P. Sloan Foundation.

2023 - 2026, Consultant, *WTG: Diffusion of Research on Supporting Mathematics Achievement for Youth with Disabilities through Twitter Translational Visual Abstracts*, Jessica Rodrigues (PI, University of Missouri), National Science Foundation, [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2244734&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2244734&HistoricalAwards=false)

2023 - 2025, Consultant, *Forschen mit epidemischer Unsicherheit Lernen (Project FEUL)* (Learning to do investigations with epistemic uncertainty), Marcus Kubsch (PI; IPN - Leibniz Institute, Kiel, Germany), Joachim Herz Foundation

2022-2024, Participating Faculty, *Bayesian Thinking in STEM*, (NSF Grant No. 2215879), <https://www.stat.uci.edu/bayes-bats/>

2022-2027, Advisory Board Member, *Collaborative Research: Enhancing Data Science and Statistics Teacher Education-Transforming and Building Community*, Hollylynne Lee (PI; North Carolina State University), National Science Foundation. [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2141727&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2141727&HistoricalAwards=false)

2022-2025, Advisory Board Member, *A Learning Ecosystem for Teaching High School Students Machine Learning Concepts and Data Science Skills in Healthcare and Medicine*, Kathryn Eller (PI; East Bay Educational Collaborative), National Science Foundation. [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2148451&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2148451&HistoricalAwards=false)

2022-2025, Advisory Board Member, *Mathematizing, Visualizing, and Power (MVP): Appalachian youth becoming data artists for community learning*, Lynn Hodge (PI), National Science Foundation, [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2215004&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2215004&HistoricalAwards=false)

2021-2026, Advisory Board Member, *SEER Research Network for Digital Learning Platforms*, Jeremy Roschelle (PI; Digital Promise), Institute for Education Sciences, Digital Learning Platforms to Enable Efficient Education Research Network

2021-2022, Lead STEM Education Consultant, *Supporting Students' Meaningful Engagement With Data From Small Orbiting Satellites*, Art Palisoc (PI), STEM Ed LLC, NSF Phase I SBIR, *STEM Experiments and Games in Low Earth Orbit – Making STEM Learning Fun*

2017-2020, Senior Investigating Consultant, *Profiles of science engagement: Broadening participation by understanding individual and contextual influences*, Jennifer Schmidt (PI), Michigan State University. (NSF Grant No. 1661064)

## Publications

+ Denotes a collaboration with a mentee who is a graduate student

^ Denotes a collaboration with a mentee who is an undergraduate student

## Books (3)

Akcaoglu, M., Rosenberg, J. M., Lishinski, A., Narvaiz, S., & Bulut, O. (under contract). *Computational social science cookbook with R: A practical guide* (a volume in the *Chapman & Hall/CRC Big Data Series*). CRC Press.

Rosenberg, K., & Rosenberg, J. M. (under contract). *Little kids, big adventures: Exploring the Cumberland Plateau, Tennessee Valley, and Great Smoky Mountains with kids*. University of Tennessee Press. <https://littlekidsbigadventures.com/>

Estrellado, R. A., Freer, E. A., Mostipak, J., Rosenberg, J. M., & Velásquez, I. C. (2020). *Data science in education using R*. Routledge. *Note*. All authors contributed equally. <http://www.datascienceineducation.com/>

## Articles Published in Refereed Journals (52)

Carpenter, J. P., Rosenberg, J. M., Kessler, A., Romero-Hall, E., & Fischer, C. (2024). The importance of context in teacher educators' professional digital competence. *Teachers and Teaching*, 1-17. <https://www.tandfonline.com/doi/full/10.1080/13540602.2024.2320155>

Ranellucci, J., & Rosenberg, J. M. (2023). Students' interest, engagement, and achievement in online high school science courses. *Educational Psychology*, 1-19.

Staudt Willet, K.B., Rosenberg, J.M. (2023). The Design and Effects of Educational Data Science Workshops for Early Career Researchers. *Journal Formative Design in Learning*. <https://doi.org/10.1007/s41686-023-00083-7>

Hodge, E. M., Rosenberg, J. M., & López, F. A. (2023). “We Don’t Teach Critical Race Theory Here”: A Sentiment Analysis of K-12 School and District Social Media Statements. *Peabody Journal of Education*, 1-15. <https://www.tandfonline.com/doi/full/10.1080/0161956X.2023.2261318>

- Garner, A. V., & Rosenberg, J. (2023). Utilizing iNaturalist to Support Place-Based Learning and Data Analysis. *Science Scope*, 46(7), 54-60. <https://www.nsta.org/science-scope/science-scope-fall-2023/using-inaturalist-support-place-based-learning-and-data>
- Rosenberg, J. M. (2023). Open and Useful? Exploring the Science Education Resources on OER Commons. *Contemporary Issues in Technology and Teacher Education*, 23(3), 490-507.
- Borchers, C., Rosenberg, J. M., & Swartzentruber, R. M. (2023). Facebook post data: a primer for educational research. *Educational Technology Research and Development*, 1-20. <https://link.springer.com/article/10.1007/s11423-023-10269-2>
- Carpenter, J. P., Morrison, S. A., Rosenberg, J. M., & Hawthorne, K. A. (2023). Using social media in pre-service teacher education: The case of a program-wide twitter hashtag. *Teaching and Teacher Education*, 124, 1-17. <https://www.sciencedirect.com/science/article/pii/S0742051X23000240>
- Rosenberg, J., ^Borchers, C., Stegenga, S. M., ^Burchfield, M. A., Anderson, D., & Fischer, C. (2022). How educational institutions reveal students' personally identifiable information on Facebook. *Learning, Media, & Technology*. <https://www.tandfonline.com/doi/full/10.1080/17439884.2022.2140672>
- Rosenberg, J. M., ^Borchers, C., ^Burchfield, M. A., Anderson, D., Stegenga, S. M., & Fischer, C. (2022). Posts About Students on Facebook: A Data Ethics Perspective. *Educational Researcher*, 51(8), 547-550. <https://journals.sagepub.com/doi/full/10.3102/0013189X221120538>
- Kubsch, M., Krist, C., & Rosenberg, J. M. (2023). Distributing Epistemic Functions and Tasks - A framework for augmenting human analytic power with machine learning in science education research. *Journal of Research in Science Teaching*. <https://onlinelibrary.wiley.com/doi/full/10.1002/tea.21803>. *Note.* All authors contributed equally. This paper received the 2023 Research Worth Reading Award for the Research in Artificial Intelligence in Science Education Research Interest Group, National Association for Research in Science Teaching.
- Rosenberg, J. M., Kubsch, M., Wagenmakers, E.-J., & Dogucu, M. (2022). Making sense of uncertainty in the science classroom: A Bayesian approach. *Science & Education*, 31, 1239-1262. <https://link.springer.com/article/10.1007/s11191-022-00341-3>
- Jones, R. S., & Rosenberg, J. M. (2022). Characterizing whole class discussions about data and statistics with conversation profile analysis. *Journal of Mathematical Behavior*, 67, 1-16. <https://www.sciencedirect.com/science/article/abs/pii/S0732312322000645>
- Rosenberg, J. M., Schultheis, E., Kjolvik, M., Reedy, A., & +Sultana, O. (2022). Big data, big changes? A survey of K-12 science teachers in the United States on which data sources and tools they use in the classroom. *British Journal of Educational Technology*, 53(5), 1179-1201. <https://onlinelibrary.wiley.com/doi/10.1111/bjet.13245>
- +Michela, E., Rosenberg, J., Kimmons, R., +Sultana, O., ^Burchfield, M. A., & ^Thomas, T. (2022). "We are trying to communicate the best we can": Understanding districts' communication on Twitter during the COVID-19 pandemic. *AERA Open*, 8, 1-18. <https://doi.org/10.1177/23328584221078542>
- Trout Fryxell, R. T., Camponovo, M., Smith, B., Butefish, K., Rosenberg, J. M., Andsager, J. L., ... & Willis, M. P. (2022). Development of a community-driven mosquito surveillance program for vectors of La Crosse virus to educate, inform, and empower a community. *Insects*, 13(2), 164. <https://www.mdpi.com/2075-4450/13/2/164>
- Rutherford, T., Duck, K., Rosenberg, J. M., & Patt, R. (2022). Leveraging mathematics software data to understand student learning and motivation during the COVID-19 pandemic. *Journal of Research on*

- Technology in Education*, 54(1), 94-131. <https://www.tandfonline.com/doi/full/10.1080/15391523.2021.1920520>
- Aguilar, S. J., Rosenberg, J., Greenhalgh, S., Fütterer, T., Lishinski, A., & Fischer, C. (2021). A different experience in a different moment? Teachers' social media use before and during the COVID-19 pandemic. *AERA Open*, 7, 1-17. <https://journals.sagepub.com/doi/full/10.1177/23328584211063898>
- +Lawson, M. A., Herrick, I. R., & Rosenberg, J. M. (2021). Better together: Mathematics and science pre-service teachers' sensemaking about STEM. *Educational Technology & Society*, 24(4), 180-192.
- Schweinsburg, M., . . . Luis, S. (2021). Same data, different conclusions: Radical dispersion in empirical results. *Organizational Behavior and Human Decision Processes*, 165(7), 228-249. <https://www.sciencedirect.com/science/article/pii/S0749597821000200> (Note. I was an author and contributor to this large-scale, collaborative project.)
- Greenhalgh, S. P., Rosenberg, J. M., & Russell, A. (2021). The influence of policy and context on teachers' social media use. *The British Journal of Educational Technology*, 52(5), 2020-2037. <https://bera-journals.onlinelibrary.wiley.com/doi/10.1111/bjet.13096?af=R>
- Frank, K. A., Lin, Q., Maroulis, S., Strassman, A., Xu, R., Rosenberg, J. M., Hayter, C., Mahmoud, R., Kolak, M., Dietz, T., & Zhang, L. (2021). Hypothetical case replacement can be used to quantify the robustness of trial results. *Journal of Clinical Epidemiology*, 134(6), 150-159. <https://www.sciencedirect.com/science/article/pii/S0895435621000366> Note. I was a scientific programmer for this project.
- Rosenberg, J. M., ^Borchers, C., Dyer, E., Anderson, D. J., & Fischer, C. (2021). Advancing new methods for understanding public sentiment about educational reforms: The case of Twitter and the Next Generation Science Standards. *AERA Open*, 7, 1-17. <https://journals.sagepub.com/doi/10.1177/23328584211024261>
- Ranellucci, J., Robinson, K., Rosenberg, J. M., Lee, Y.-K., Roseth, C., & Linnenbrink-Garcia. (2021). Comparing the roles and correlates of emotions in class and during online video lectures in a flipped anatomy classroom. *Contemporary Educational Psychology*, 64(4), 1-15. <https://doi.org/10.1016/j.cedpsych.2021.101966>
- Akcaoglu, M., Rosenberg, J. M., Hodges, C. B., Hilpert, J. (2021). An exploration of factors impacting middle school students' attitudes toward computer programming. *Computers in the Schools*, 38(1), 19-35. <https://doi.org/10.1080/07380569.2021.1882209>
- Rosenberg, J. M., & Krist, C. (2021). Combining machine learning and qualitative methods to elaborate students' ideas about the generality of their model-based explanations. *Journal of Science Education and Technology*, 30(2), 255-267. <https://link.springer.com/article/10.1007%2Fs10956-020-09862-4>. Note. Both authors contributed equally.
- Rosenberg, J. M., & Staudt Willet, K. B. (2021). Balancing participants' privacy and open science in the context of COVID-19: A response to Ifenthaler & Schumacher (2016). *Educational Technology Research & Development*, 69(1), 347-351.
- Harper, F. K., Rosenberg, J. M., ^Comperry, S., ^Howell, K., & ^Womble, S. (2021). #Mathathome during the COVID-19 Pandemic: Exploring and reimagining resources and social supports for parents. *Education Sciences*, 11(2), 60, 1-24. <https://www.mdpi.com/2227-7102/11/2/60>
- Anderson, D. J., Rowley, B., Stegenga, S., Irvin, P. S., & Rosenberg, J. M. (2020). Evaluating content-related validity evidence using a text-based, machine learning procedure. *Educational Measurement: Issues and Practice*, 39(4), 53-64. <https://onlinelibrary.wiley.com/doi/abs/10.1111/emip.12314>

- Rosenberg, J. M., Reid, J., Dyer, E., Koehler, M. J., Fischer, C., & McKenna, T. J. (2020). Idle chatter or compelling conversation? The potential of the social media-based #NGSSchat network as a support for science education reform efforts. *Journal of Research in Science Teaching*, 57(9), 1322-1355. <https://onlinelibrary.wiley.com/doi/10.1002/tea.21660>
- Carpenter, J., Rosenberg, J. M., Dousay, T., Romero-Hall, E., Trust, T., Kessler, A., Phillips, M., Morrison, S., Fischer, C. & Krutka, D. (2020). What should teacher educators know about technology? Perspectives and self-assessments. *Teaching and Teacher Education*, 95(10), 103-124. <https://doi.org/10.1016/j.tate.2020.103124>
- Ranellucci, J., Rosenberg, J. M., & Poitras, E. (2020). Exploring pre-service teachers' use of technology: The technology acceptance model and expectancy-value theory. *Journal of Computer Assisted Learning*, 36(6), 810-824. <http://dx.doi.org/10.1111/jcal.12459>
- Schmidt, J. A., Beymer, P. N., Rosenberg, J. M., Naftzger, N. J., & Shumow, L. (2020). Experiences, activities, and personal characteristics as predictors of engagement in STEM-focused summer programs. *Journal of Research in Science Teaching*, 57(8), 1281-1309. <https://onlinelibrary.wiley.com/doi/full/10.1002/tea.21630>
- Greenhalgh, S. P., Rosenberg, J. M., Koehler, M. J., Akcaoglu, M., & Staudt Willet, K. B. (2020). Identifying multiple learning spaces within a single teacher-focused Twitter hashtag. *Computers & Education*, 148(4). <https://doi.org/10.1016/j.compedu.2020.103809>
- Beymer, P. N., Rosenberg, J. M., & Schmidt, J. A. (2020). Does choice matter or is it all about interest? An investigation using an experience sampling approach in high school science classrooms. *Learning and Individual Differences*, 78(2), 1-15. <https://doi.org/10.1016/j.lindif.2019.101812>
- Rosenberg, J. M., +Edwards, A., & Chen, B. (2020). Getting messy with data: Tools and strategies to help students analyze and interpret complex data sources. *The Science Teacher*, 87(5). [https://learningcenter.nsta.org/resource/?id=10.2505/4/tst20\\_087\\_05\\_30](https://learningcenter.nsta.org/resource/?id=10.2505/4/tst20_087_05_30)
- Xu, R., Frank, K. A., Maroulis, S., & Rosenberg, J. M. (2019). konfound: Command to quantify robustness of causal inferences. *The Stata Journal*, 19(3), 523-550. <https://journals.sagepub.com/doi/full/10.1177/1536867X19874223>
- Blondel, D. V., Sansone, A., Rosenberg, J. M., Yang, B. W., Linennbrink-Garcia, L., & Schwarz-Bloom, R. D. (2019). Development of an online experiment platform (Rex) for high school biology. *Journal of Formative Design for Learning*, 3(1) 62-81. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6716597/>
- Henriksen, D., Mehta, R. & Rosenberg, J. (2019). Supporting a creatively focused technology fluent mindset among educators: survey results from a five-year inquiry into teachers' confidence in using technology. *Journal of Technology and Teacher Education*, 27(1), 63-95. <https://www.learntechlib.org/primary/p/184724/>
- Rosenberg, J. M., & +Lawson, M. J. (2019). An investigation of students' use of a computational science simulation in an online high school physics class. *Education Sciences*, 9(49), 1-19. <https://www.mdpi.com/2227-7102/9/1/49>
- Rosenberg, J. M., Beymer, P. N., Anderson, D. J., & Schmidt, J. A. (2018). tidyLPA: An R package to easily carry out Latent Profile Analysis (LPA) using open-source or commercial software. *Journal of Open Source Software*, 3(30), 978. <https://doi.org/10.21105/joss.00978>
- Greenhalgh, S. P., Staudt Willet, K. B., Rosenberg, J. M., & Koehler, M. J. (2018). Tweet, and we shall find: Using digital methods to locate participants in educational hashtags. *TechTrends*, 62(5), 501-508.

<https://doi.org/10.1007/s11528-018-0313-6>

- Beymer, P. N., Rosenberg, J. M., Schmidt, J. A., & Naftzger, N. (2018). Examining relationships between choice, affect, and engagement in out-of-school time STEM programs. *Journal of Youth and Adolescence*, 47(6), 1178-1191. <https://doi.org/10.1007/s10964-018-0814-9>
- Akcaoglu, M., Rosenberg, J. M., Ranellucci, J., & Schwarz, C. V. (2018). Outcomes from a self-generated utility value intervention on fifth and sixth-grade students' value and interest in science. *International Journal of Educational Research*, 87, 67-77. <https://www.sciencedirect.com/science/article/pii/S0883035517308492>
- Schmidt, J. A., Rosenberg, J. M., & Beymer, P. (2018). A person-in-context approach to student engagement in science: Examining learning activities and choice. *Journal of Research in Science Teaching*, 55(1), 19-43. <https://dx.doi.org/10.1002/tea.21409> (Note. This article was recognized as one of the 20 most-downloaded articles in JIRST between June, 2016 and June, 2018)
- Rosenberg, J.M., Greenhalgh, S.P., Graves Wolf, L. & Koehler, M.J. (2017). Strategies, use, and impact of social media for supporting teacher community within professional development: The case of one urban STEM program. *Journal of Computers in Mathematics and Science Teaching*, 36(3), 255-267. <https://www.learntechlib.org/primary/p/180387/>
- Koehler, M. J., Greenhalgh, S. P., Rosenberg, M. J., & Keenan, S. (2017). What the tech is going on with digital teaching portfolios? Using the TPACK framework to analyze teachers' technological understanding. *Journal of Technology and Teacher Education*, 25, 31-59. <http://www.learntechlib.org/p/173346/> ">
- Rosenberg, J. M., Greenhalgh, S. P., Koehler, M. J., Hamilton, E., & Akcaoglu, M. (2016). An investigation of State Educational Twitter Hashtags (SETHs) as affinity spaces. *E-Learning and Digital Media*, 13(1-2), 24-44. <http://dx.doi.org/10.1177/2042753016672351>
- Greenhalgh, S. P., Rosenberg, J. M., & Wolf, L. G. (2016). For all intents and purposes: Twitter as a foundational technology for teachers. *E-Learning and Digital Media*, 13(1-2), 81-98. <http://dx.doi.org/10.1177/2042753016672131>
- Hamilton, E., Rosenberg, J. M., & Akcaoglu, M. (2016). Examining the Substitution Augmentation Modification Redefinition (SAMR) model for technology integration. *Tech Trends*, 60, 433-441. <http://dx.doi.org/10.1007/s11528-016-0091-y>
- Rosenberg, J. M., Terry, C. A., Bell, J., Hiltz, V., & Russo, T. (2016). Design guidelines for graduate program social media use. *Tech Trends*, 2, 167-175. <http://dx.doi.org/10.1007/s11528-016-0023-x>
- Rosenberg, J. M., & Koehler, M. J. (2015). Context and Technological Pedagogical Content Knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education*, 47, 186-210. <http://dx.doi.org/10.1080/15391523.2015.1052663>

## Commissioned Papers and White Papers (2)

- Bilal, D., Fagan, J., Rius, A., Vogiatzis, K., Liu, C., Dahms, H., Duncan, L., Kim, H., Odoi, A., Rosenberg, J., Singh, V., & Sobes, V. (2023). *AI TENNessee Initiative: Education*. *AI Tennessee Initiative*. N.b. I co-chaired the committee that wrote this white paper with C. Liu.
- Rosenberg, J. M., & Jones, R. S. (2022). *K-12 data science learning*. Paper commissioned by the National Academies of Sciences, Engineering, and Medicine for *Foundations of Data Science for Students in Grades K-12: A Workshop*. <https://www.nationalacademies.org/event/09-13-2022/docs/DD667E469D0EC5DD91A7D85BC839A9852491A3CF9F15>

## Editor-Reviewed Articles Published in Journals (11)

- Allman, B., Kimmons, R., Rosenberg, J., & Dash, M. (2023). Trends and Topics in Educational Technology, 2023 Edition. *TechTrends*, 67(3), 583-591.
- Hodge, E. M., López, F. A., & Rosenberg, J. M. (2022). How to respond to community concerns about critical race theory. *Phi Delta Kappan*, 104(3), 48-53. <https://journals.sagepub.com/doi/full/10.1177/00317217221136599>
- Jiang, S., Lee, V. R., & Rosenberg, J. M. (2022). Data science education across the disciplines: Underexamined opportunities for K-12 innovation. *British Journal of Educational Technology*, 53(5), 1073-1079. <https://bera-journals.onlinelibrary.wiley.com/doi/full/10.1111/bjet.13258>
- Kimmons, R., Rosenberg, J.M. (2022). Trends and topics in educational technology, 2022 Edition. *TechTrends*, 66, 134-140. <https://doi.org/10.1007/s11528-022-00713-0>
- Frank K.A., Lin Q., Maroulis S., Mueller A.S., Xu R., Rosenberg J.M., Hayter C.S., Mahmoud R.A., Kolak M., Dietz T., Zhang L. (2022). Response to “Three Comments on the RIR method”. *Journal of Clinical Epidemiology*, 146, 134-140. <https://pubmed.ncbi.nlm.nih.gov/35131466/>
- Kessler, A. M., Likely, R., & Rosenberg, J. (2021). Open for whom? The need to define open science for science education. *Journal of Research in Science Teaching*, 58(10), 1590-1595. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/tea.21730>
- Rosenberg, J. M., ^Burchfield, M. B., ^Borchers, C., ^Gibbons, B., & Anderson, D., and Fischer, C. (2021). Posts on Facebook by schools and districts and the potential risks to students’ privacy. *Phi Delta Kappan*. <https://kappanonline.org/social-media-students-privacy-facebook-rosenberg/>
- Kimmons, R., Rosenberg, J., & Allman, B. (2021). Trends in educational technology: What Facebook, Twitter, and Scopus can tell us about current research and practice. *TechTrends*, 65(2), 125-136.
- Mehta, R., Henriksen, D., & Rosenberg, J. M. (2019). It’s not about the tools. *Educational Leadership*, 76(5), 64-69. Retrieved from <http://www.ascd.org/publications/educational-leadership/feb19/vol76/num05/It’s-Not-About-the-Tools.aspx>
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- Phillips, M., Harris, J., Rosenberg, J. M., & Koehler, M. J. (2017). TPCK/TPACK research and development: Past, present, and future directions. *Australasian Journal of Educational Technology*. <https://doi.org/10.14742/ajet.3907>

## Contributions to Edited Volumes (10)

- Dai, T., Rosenberg, J. M., & +Lawson, M. A. (2022). Data representations and visualizations in educational research. In T. L. Good & M. McCaslin (Eds.), Educational Psychology Section; D. Fisher (Ed.), *Routledge encyclopedia of education*. Taylor & Francis: New York, NY. <https://doi.org/10.4324/9781138609877-REE148-1>
- Rosenberg, J. M., +Lawson, M. A., Anderson, D. J., & Rutherford, T. (2020). Making data science count in and for education. In E. Romero-Hall (Ed.), *Research methods in learning design & technology* (pp. 94-110). Routledge: New York, NY.

- Greenhalgh, S. P., Staudt Willet, B., Rosenberg, J. M., & Koehler, M. J. (2020). Lessons learned from applying Twitter research methods to educational technology phenomena. In E. Romero-Hall (Ed.), *Research methods in learning design & technology* (pp. 64-77). Routledge: New York, NY.
- Eidelman, R., Rosenberg, J. M., & Schwartz, Y. (2019). Assessing the interaction between self-regulated learning (SRL) profiles and actual learning in the chemistry online blended learning environment (COBLE). In Sampson, D., D. Ifenthaler, M. Spector, P. Isafas, & S. Sergis (Eds.), *Learning technologies for transforming teaching, learning and assessment at large scale* (pp. 231-255). Berlin, Germany: Springer.
- Herring, M., Koehler, M. J., Mishra, P., Rosenberg, J. M., & Teske, J. (2016). Introduction to the 2nd edition of the TPACK handbook. In M. Herring, M. J. Koehler, & P. Mishra (Eds.), *Handbook of Technological Pedagogical Content Knowledge (TPACK) for educators* (2nd ed., pp. 1-8). New York, NY: Routledge.
- Keenan, S., Rosenberg, J. M., Greenhalgh, S. P. & Koehler, M. J. (2016). Examining teachers' technology use through digital portfolios. In L. Liu & D. C. Gibson (Eds.), *Research highlights in technology and teacher education 2016* (pp. 53-60). Chesapeake, VA: Association for the Advancement of Computing in Education.
- Phillips, M., Koehler, M. J. & Rosenberg, J. M. (2016). Considering context: Teachers' TPACK development and enactment. In L. Liu & D. C. Gibson (Eds.), *Research highlights in technology and teacher education* (pp. 197-204). Chesapeake, VA: Association for the Advancement of Computing in Education. ">
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- Koehler, M. J., Mishra, P., Akcaoglu, M., & Rosenberg, J. M. (2013). Technological pedagogical content knowledge for teachers and teacher educators. In N. Bharati and S. Mishra (Eds.), *ICT integrated teacher education: A resource book* (pp. 1-8). Commonwealth Educational Media Center for Asia, New Delhi, India.

## Papers Published in Refereed Conference Proceedings (32)

- Palaguachi, C., Cox, E., Rosenberg, J., Dyer, E., & Krist, C. (2023, October). Automatic speech recognition (ASR) in noisy classrooms: Evaluating the usefulness of three popular ASR tools. In Learning Sciences Graduate Student Conference, 2023. [https://www.lsgsc.org/\\_files/ugd/fd445f\\_74a457de2acb47099455e5a416952899.pdf#page=44](https://www.lsgsc.org/_files/ugd/fd445f_74a457de2acb47099455e5a416952899.pdf#page=44)
- Krist, C., Dyer, E. B., Rosenberg, J., Palaguachi, C., & Cox, E. (2023). Leveraging Computationally Generated Descriptions of Audio Features to Enrich Qualitative Examinations of Sustained Uncertainty. In Proceedings of the 17th International Conference of the Learning Sciences-ICLS 2023, pp. 1258-1261. International Society of the Learning Sciences. <https://repository.isls.org/handle/1/9894>
- Thomas, T., Rosenberg, J. M., Penner, E. & Burchfield, M. (2022). Racism and school districts' social media posts: "Is it being talked about?". Proceedings for the *Social Media and Society* conference.

- Burchfield, M., Rosenberg, J. M., & Stegenga, S. (2022). Updated or outdated consent? A study of the media release policies of U.S. K-12 school districts. Proceedings for the *Social Media and Society* conference.
- Lishinski, A., Narvaiz, S., and Rosenberg, J. M. (2022). Self-efficacy, interest, and belongingness – URM Students’ momentary experiences in CS1. *Proceedings of the 2022 ACM Conference on International Computing Education Research (ICER ’22)*. <https://dl.acm.org/doi/abs/10.1145/3501385.3543958>. *Note.* Unlike most of academia, premiere conferences in computing education are selective venues for archival research. Thiese conference proceedings exceed many journals in their selectivity, visibility, and impact.
- Carpenter, J., Morrison, S., Rosenberg, J., & Hawthorne, K. (2022). Professional learning networks for pre-service teachers: A social network analysis of a program-wide teacher education Twitter hashtag. In *Society for Information Technology & Teacher Education International Conference* (pp. 1489-1497). Association for the Advancement of Computing in Education (AACE). <https://www.learntechlib.org/p/220934/>
- Borchers, C., Rosenberg, J., Gibbons, B., Burchfield, M., & Fischer, C. (2021). To scale or not to scale: Comparing popular sentiment analysis dictionaries on educational Twitter data. In I.-H. Hsiao, S. Sahebi, F. Bouchet, & J.-J. Vie (Eds), *Proceedings of the 14th International Conference on Educational Data Mining* (pp. 619-624). T Paris, France. [https://educationaldatamining.org/EDM2021/virtual/static/pdf/EDM21\\_paper\\_122.pdf](https://educationaldatamining.org/EDM2021/virtual/static/pdf/EDM21_paper_122.pdf)
- Burchfield, M., Rosenberg, J., Borchers, C., Thomas, T., Gibbons, B., & Fischer, C. (2021). Are violations of student privacy “quick and easy”? Investigating the privacy of students’ images and names in the context of K-12 educational institution’s posts on Facebook. In I.-H. Hsiao, S. Sahebi, F. Bouchet, & J.-J. Vie (Eds), *Proceedings of the 14th International Conference on Educational Data Mining* (pp. 744-749), Paris, France. [https://educationaldatamining.org/EDM2021/virtual/static/pdf/EDM21\\_paper\\_276.pdf](https://educationaldatamining.org/EDM2021/virtual/static/pdf/EDM21_paper_276.pdf).
- Lishinski, A., & Rosenberg, J. (2021). All the pieces matter: The relationship of momentary self-efficacy and affective experiences with CS1 achievement and interest in computing. *Proceedings of the 17th ACM Conference on International Computing Education Research*, 252–265. <https://doi.org/10.1145/3446871.3469740>. *Note.* This presentation received the best poster award. Unlike most of academia, premiere conferences in computing education are selective venues for archival research. Thiese conference proceedings exceed many journals in their selectivity, visibility, and impact.
- Rosenberg, J. M., & Kubsch, M. (2021). Considering K-12 learners’ use of Bayesian methods. In E. de Vries, Y. Hod, & J., Ahn (Eds.), *The International Society of the Learning Sciences 2020 Conference Proceedings* (pp. 947-948). International Society of the Learning Sciences. <https://repository.isls.org/handle/1/7635>
- Rosenberg, J. M., Galas, E., & Staudt Willet, K.B. (2021). Who are the data scientists in education? An investigation of the identities and work of individuals in diverse roles. In E. de Vries, Y. Hod, & J., Ahn (Eds.), *The International Society of the Learning Sciences 2020 Conference Proceedings* (pp. 1057-1058). International Society of the Learning Sciences. <https://repository.isls.org/handle/1/7394>
- Kubsch, M., Rosenberg, J. M., & Krist, C. (2021). Beyond supervision: Human / machine distributed learning in learning sciences research. In E. de Vries, Y. Hod, & J., Ahn (Eds.), *The International Society of the Learning Sciences 2020 Conference Proceedings* (pp. 897-898). International Society of the Learning Sciences. <https://repository.isls.org/handle/1/7609>
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- +Mann, M., ^Bui, H., ^Gibbons, B., +Lishinski, A., Dyer, E., & Rosenberg, J. M. (2021). “Not my subject”?: A survey of teachers regarding the implementation of new K-8 computing education standards. In *Proceedings of the 51st ACM Technical Symposium on Computer Science Education* (p. 1343). <https://dl.acm.org/doi/abs/10.1145/3408877.3439666>
- Rosenberg, J. M., +Schmidt, A., Rosenberg, A. M., +Longnecker, J., & +Mann M. (2020). Becoming ‘tidier’ over time. Studying #tidytuesday as a social media-based context for learning to visualize data. In M. Gresalfi and I. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences: The International Conference of the Learning Sciences 2020 Conference Proceedings* (Vol 3., pp. 1811-1812). ISLS. <https://repository.isls.org/handle/1/6455>
- Jones R. S., & Rosenberg, J. M. (2020). Studying whole class discussions at scale. In M. Gresalfi and I. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences: The International Conference of the Learning Sciences 2020 Conference Proceedings* (Vol 5., pp. 2499-2506). ISLS. <https://repository.isls.org/handle/1/6612>
- D’Angelo, C., Dyer, E. B., Krist, C., Rosenberg, J. M., & Bosch, N. (2020). Advancing computational grounded theory for audiovisual data from mathematics classrooms. In M. Gresalfi and I. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences: The International Conference of the Learning Sciences 2020 Conference Proceedings* (Vol 4., pp. 2393-2394). ISLS.
- Dyer, E. B., D’Angelo, D., Bosch, N., Krist, C., & Rosenberg, J. M. (2020). Analyzing learning with speech analytics and computer vision methods: Technologies, principles, and ethics. In M. Gresalfi and I. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences: The International Conference of the Learning Sciences 2020 Conference Proceedings* (Vol 5., pp. 2651-2652). ISLS. <https://joshuamrosenberg.com/publications/dyer-et-al-icls-2020.pdf>
- Rosenberg, J. M. (2020). More confidently uncertain? Teaching learners to apply Bayesian methods to make sense of scientific phenomena. In M. Gresalfi and I. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences: The International Conference of the Learning Sciences 2020 Conference Proceedings* (Vol 5., pp. 2681-2682). ISLS.
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## Posts in the Popular Press (1)

Rosenberg, J. M. (2021). School posts on Facebook could threaten student privacy. *The Conversation*. <https://theconversation.com/school-posts-on-facebook-could-threaten-student-privacy-160248>

## Blog posts and reports (4)

Rosenberg, J. M. (2020). Open-source authorship of data science in education using R. *R Views*. <https://rviews.rstudio.com/2020/07/01/open-source-authorship-of-data-science-in-education-using-r/>

Rosenberg, J. M. (2018). Opportunities for engaging students in “data practices” in online science classes. *Michigan Virtual Learning Research Institute Blog: Research, Policy, Innovation & Networks*. <https://mvlri.org/blog/opportunities-engaging-students-data-practices-online-science-classes/>

Rosenberg, J. M., & Ranellucci, J. (2017). Student motivation in online science courses: A path to spending more time on course and higher achievement. *Michigan Virtual Learning Research Institute Blog: Research, Policy, Innovation & Networks*. <https://mvlri.org/blog/student-motivation-in-online-science-courses-a-path-to-spending-more-time-on-course-and-higher-achievement/>

Naftzger, N., Schmidt, J. A., Shumow, L., Beymer, P. N., & Rosenberg, J. M. (2019). *Exploring the link between STEM activity leader practice and youth engagement: Findings from the STEM IE study*. Washington, DC: American Institutes for Research. <https://www.informalscience.org/exploring-link-between-stem-activity-leader-practice-and-youth-engagement-findings-stem-ie-study>

## Unpublished Manuscripts (2)

Rosenberg, J. M. (2018). *Context and Technological Pedagogical Content Knowledge: An initial survey of teachers and validation data*. <https://osf.io/hc9fq/>

Rosenberg, J. M. (2018). *Understanding work with data in summer STEM programs: An experience sampling method approach* (Doctoral dissertation). Retrieved from Proquest Dissertations and Theses. (Proquest No. 10747232)

## Presentations

### Invited Talks (5)

Hu, A. D., Greenhalgh, S. P. Rosenberg, J. M., & Staudt-Willet, B. (March, 2023). *What ChatGPT is, how it is impacting universities, and how might we make “good” use of it..* Panel presentation at the Michigan State University College of Education. Michigan State University, East Lansing, MI.

Rosenberg, J. M. (April, 2021). *AI and ML and data! Oh my! Supporting teachers’ and learners’ work by considering the human sides of data science*. Keynote presentation at the LEAD Graduate School and Research Network retreat. The University of Tübingen, Baden-Württemberg, Germany.

Rosenberg, J. M. (October, 2021). *All together now: Leveraging data science techniques alongside traditional approaches to understand learning*. Invited presentation at the International Conference on Education Research. Seoul National University, Seoul, South Korea.

Rosenberg, J. M. (February, 2020). *Studying education-focused Twitter hashtags in light of state-based and national policies and practices*. Presentation at the 2020 Spring Seminar Series at the Martin School of Public Policy at the University of Kentucky, Lexington, KY.

Rosenberg, J.M. (September, 2019). *Making data science education count: Exploring the integration of data science into education*. Presentation at the Middle Tennessee State University Mathematics and Science Education Doctoral Seminar series. Middle Tennessee State University, Murfreesboro, TN.

Rosenberg, J. M. (February, 2019). *Making sense of recent advances in the Technological Pedagogical Content Knowledge framework*. English International Congress at the Universidad Técnica del Norte, Ibarra, Ecuador.

## Peer-Reviewed Conference Presentations (79)

A Bayesian Approach to Making Sense of Uncertainty in the Science Classroom Uncertainty and Sensemaking in Science Classrooms, 1:00-2:30pm Wednesday, 19 April, 2023 (with Marcus Kubsch, Mine Dogucu, and E.J. Wagenmakers)

A Curriculum Analysis of The Sources of Data and Data Engagements of Science Students, 10:30am-12:00pm Thursday, 20 April, 2023 (with Amanda Garner)

Distributing Epistemic Functions and Tasks – Towards a Methodological Approach for Using ML in Science Education, 1:10-2:40pm Thursday, 20 April, 2023 (with Marcus Kubsch and Christina Krist)

Make Graphs? A Survey of Teachers on How Their Students Analyze and Interpret Data Strengthening Science Teachers' NGSS-Aligned Instruction by Focusing on Students, 8:25-9:55am Wednesday, 19 April, 2023 (with Omiya Sultana, Aaron Reedy, Elizabeth Schultheis, and Melissa Kjervik)

Graduate Programs in Learning Analytics Workshop: Core Competencies, Curriculum, and Instruction ([link](#))

"I Love Feeling Connected Still": Educator Preparation Program Alumni Engagement Through Social Media ([link](#))

Foundations of K-12 Data Science Education ([link](#))

Teacher Collaboration and Professional Development on Twitter: An Epistemic Network Analysis ([link](#))

Experience Sampling Method: Relationships Between Students' Emotional Responses, Self-Efficacy, and Interest in Programming ([link](#))

Carpenter, J., Morrison, S., Rosenberg, J. M., & Hawthorne, K. (2022, April). *Professional learning and networking for preservice teachers on Twitter: A Social Network Analysis of #BantshireEd*. Presentation at the American Educational Research Association Annual Meeting.

Lishinski, A., Rosenberg, J. M., +Sultana, O., +Mann, M., & Dunn, J. (2021, April). *A text messaging-based experience sampling method study of students' interest in introductory computer science*. Presentation at the American Educational Research Association Annual Meeting.

Michela, E., Rosenberg, J. M., +Sultana, O., ^Burchfield, M., ^Thomas, T., & Kimmons, R. (2021, April). *"Life will eventually get back to normal": School districts' Twitter use in response to COVID-19*. Poster presentation at the American Educational Research Association Annual Meeting.

Rosenberg, J. M., Carpenter, J., +Michela, E., +Sultana, O., McKenna, T. J., Dyer, E. D., & Reid, J. (2021, April). *"Best P.D. out there"? An exploration of the #NGSSchat network on Twitter*. Presentation at the American Educational Research Association Annual Meeting.

Rosenberg, J. M., ^Borchers, C., Gibbons, B., Dyer, E. D., Anderson, D. A., & Fischer, C. (2021, April). *Don't worry, be happy: A sentiment analysis of the #NGSSchat Twitter Symposium community*. In

- M. Rehm. (Chair), *Social opportunity spaces: How social media can inform/shape educational policy processes*. Symposium conducted at the American Educational Research Association Annual Meeting.
- +Lawson, M. A., Rosenberg, J. M., & Herrick, I. (2021, April). *Better together: Supporting and understanding preservice teacher (PST) sense-making about STEM*. Presentation at the American Educational Research Association Annual Meeting.
- Kellogg, S., Jiang, S., Rosenberg, J. M., & Moore, R. (2021, April). Learning Analytics in STEM Education Research (LASER) Institute. In F. J. Levine & G. L. Wimberly (Chairs), *Building capacity in STEM education research: A discussion with directors of the NSF institutes in research methods*. Symposium at the American Educational Research Association Annual Meeting.
- Schmidt, J.A., Schell, M.J., Beymer, P.N., Alberts, K.M., Phun, V., Lee, M. & Rosenberg, J.M. (2020, August). *Students' momentary science engagement predicts end-of-course achievement*. Poster presented at the annual meetings of the American Psychological Association. Washington, DC. (Conference canceled)
- Rosenberg, J. M., Reid, J., Dyer, E., Koehler, M. J., Fischer, C., & McKenna, T. J. (2020, April). A new context for professional networks: Understanding the social structure of #NGSSChat through social network analysis. In K. A. Frank, K., Torphy, K., Daly, A., & Greenhow, C. (Chairs), *Educators meet the fifth estate: Social media in education*. Symposium conducted at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled)
- Rosenberg, J. M., Hodge, L., Bertling, J., & King, S. (2020, April). Art as a context for data science: Exploring fourth-grade students' data visualization practices. In J. M. Rosenberg & B. Chen (Chairs), *Exploring data science across the curriculum and across grade levels*. Symposium conducted at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled)
- Rosenberg, J. M., Carpenter, J. P., Romero-Hall, E., & Kessler, A. (2020, April). *Teacher educators' technology competencies and the importance of context*. Paper presented at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled)
- Rosenberg, J. M., Beymer, P. N., Phun, V., Schmidt, J. A. (2020, April). Sources of variability for students' engagement in science: Findings from a cross-classified, multivariate modeling approach. In P. N. Beymer, D. K. Benden, & M. L. Bernacki (Chairs), *Affordances and modeling of intensive data*. Symposium conducted at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled)
- Rutherford, T., Rosenberg, J. M., & Staudt Willet, K. B. (2020, April). Which birds fill the branches of the AERA Twitter tree? Twitter networks around #AERA19. In P. N. Beymer, D. K. Benden, & M. L. Bernacki (Chairs), *Affordances and modeling of intensive data*. Symposium conducted at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled)
- Jones, R. S., & Rosenberg, J. M. (2020, April). *Latent class modeling of whole-class discussions about data, statistics, and probability*. Paper presented at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled).
- Rutherford, T., & Rosenberg, J. M. (2020, April). *Motivational correlates of choice to persist after failure*. Paper presented at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled).
- Ranellucci, J. & Rosenberg, J. M. (2020, April). *Interest, engagement, and achievement in online high school science courses*. Paper presented at the American Educational Research Association Annual Meeting, San Francisco, CA. (Conference canceled).

- Schmidt, J. A., Rosenberg, J. M., & Beymer, P. N. (August, 2019). *Sources of variability in engagement: Exploring situational, personal, and classroom influences*. Poster presented at the annual meeting of the American Psychological Association, Chicago, IL.
- Greenhalgh, S. P., Huang, K., & Rosenberg, J. M. (2019, October). *Understanding gaming communities and exploring learning opportunities: A computational grounded theory approach*. Paper presented at the meeting of the Association for Educational Communications and Technology International Convention, Las Vegas, NV.
- Rosenberg, J. M., Beymer, P. N., Houslay, T. M., & Schmidt, J. A. (2019, April). Using a multivariate, multi-level model to understand how youths' in-the-moment engagement predicts changes in youths' interest. In M. Bernacki, A. Kaplan, and L. Linnenbrink-Garcia (Chairs), *Embracing and modeling the complex dynamics of motivation and engagement: Contextual, temporal, dynamic, and systematic*. Symposium conducted at the Annual Meeting of the American Educational Research Association, Toronto, CA.
- Beymer, P. N., Schell, M. J., Alberts, K. M., Rosenberg, J. M., & Schmidt, J. A. (2019, April). *Student engagement profiles in formal and informal STEM learning settings*. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Canada.
- Schell, M. J., Beymer, P. N., Albert, K. M., Rosenberg, J. M., & Schmidt, J. A. (2019, April). *Predictors of momentary student engagement profiles in high school science classrooms*. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Canada.
- Reid, J., Rosenberg, J. M., Koehler, M. J., Fischer, C., & McKenna, T. J. (2019, March). *An exploration of #NGSSchat through social network analysis*. Paper presented at the National Association for Research in Science Teaching Annual International Conference, Baltimore, MD.
- Rosenberg, J. M., Reid, J., Koehler, M. J., Fischer, C., & McKenna, T. J. (2019, January). *The roles of the Twitter hashtag #NGSSchat in the context of science education reform efforts*. Paper presented at the Association for Science Teacher Education International Meeting, Savannah, GA. (Note. This paper was nominated for the ASTE John C. Park National Technology Leadership Institute Fellowship)
- Akcaoglu, M., Hodges, C. B., Rosenberg, J. M., & Hilpert, J. (2018, October). *Factors impacting middle school students' interest, efficacy, and utility value of programming*. Paper presented at the Association for Educational Communications and Technology International Convention 2018. Kansas City, MO.
- Staudt Willet, K. B., Greenhalgh, S. P., Rosenberg, J. M., Koehler, M. J. (2018, October). *Won't you be my neighbor? How education stakeholders use hyperlinks to build information neighborhoods on Twitter*. Paper presented at the Association for Educational Communications and Technology International Convention 2018. Kansas City, MO.
- Beymer, P. N., Rosenberg, J. M., Schmidt, J. A., Naftzger, N. J., & Shumow, L. (August, 2018). *Agency in summer STEM programs predicts interest and career aspirations*. Poster presented at the annual meeting of the American Psychological Association, San Francisco, CA.
- Schmidt, J. A., Beymer, P. N., Rosenberg, J. M., Naftzger, N. J., & Shumow, L. (August, 2018). *Examining the development of interest in summer STEM programs*. Poster presented at the annual meeting of the American Psychological Association, San Francisco, CA.
- Beymer, P. N., Rosenberg, J. M., & Schmidt, J. A. (2018, April). *Investigating the effects of interest and choice: An experience sampling approach*. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.
- Greenhalgh, S. P., Staudt Willet, B., Rosenberg, J. M., Akcaoglu, M., & Koehler, M. J. (2018, April). *Timing*

- is everything: Comparing synchronous and asynchronous modes of Twitter for teacher professional learning.* Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.
- Rosenberg, J. M., Beymer, P. N., & Schmidt, J. A. (2018, April). *How engagement during out-of-school time STEM programs predicts changes in motivation in STEM.* In J. M. Rosenberg (Chair), Data-intensive approaches to studying engagement in education: Exploring their current potential. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.
- Rosenberg, J. M., Lee, Y., Robinson, K. A., Ranellucci, J., Roseth, C. J., & Linnenbrink-Garcia, L. (2018, April). *Patterns of engagement in a flipped undergraduate class: Antecedents and outcomes.* In L. Daniels & A. Frenzel (Chairs), New empirical insights on what energizes learners – A session on emotions and engagement. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.
- Schmidt, J. A., Rosenberg, J.M., & Beymer, P. N. (2018, April). *Experiences, activities, and personal characteristics as predictors of interest and engagement in STEM-focused summer programs.* Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.
- Shwartz, Y., Bayer, I., Bielik, T., Kolonich, A., Eidelman, R., Shwartz, G., . . . Rosenberg, J. M. (2018, March). *Graduate student international collaboration for investigating science teachers' professional learning.* Paper presented at the meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Yang, B. W., Blondel, D. V., Rosenberg, J. M., Sansone, A., Linennbrink-Garcia, L., Schwarz-Bloom, R. D. (2017, November). *The Rex virtual experiment platform: Design, implementation, and effects on situational interest.* Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.
- Greenhalgh, S. P., Staudt Willet, K. B., Rosenberg, J. M., & Koehler, M. J. (2017, November). *No accounting for theory? The case for an affinity space approach to educational hashtag research.* Paper presented at the Association for Educational Communications and Technology International Convention 2017, Jacksonville, FL.
- Greenhalgh, S. P., Rosenberg, J. M., & Koehler, M. J. (2017, November). *Hide and go tweet: Comparing methods for locating educational hashtag participants.* Paper presented at the Association for Educational Communications and Technology International Convention 2017, Jacksonville, FL.
- Schmidt, J. A., Rosenberg, J. M., & Beymer, P. N. (2017, August). *Stability and variation in student engagement in science classes: A person-oriented approach.* Paper presented at the Annual Meeting of the American Psychological Association, Washington, DC.
- Beymer, P. N., Rosenberg, J. M., Schmidt, J. A., Naftzger, N., Sniegowski, S., Shumow, L. (August, 2017). *Examining relationships between choice, affect, and engagement in informal STEM programs.* Paper presented at the Annual Meeting of the American Psychological Association, Washington, DC.
- Greenhalgh, S. P., Rosenberg, J. M., & Koehler, M. J. (2017, April). *Combining data sets and methods to explore equity in teacher professional development.* In D. G. Krutka (Chair), *Data, big and small.* Symposium conducted at the meeting of the American Educational Research Association, San Antonio, TX.
- Schmidt, J. A., Rosenberg, J. M., & Beymer, P. N. (2017, April). *Momentary engagement profiles: A person-in-context approach to studying student engagement using experience sampling data.* Paper presented at the Annual Meeting of the American Educational Research Association, San Antonio, TX.

- Roseth, C. J., Linnenbrink-Garcia, L., Saltarelli, W., Lee, Y-K., Rosenberg, J. M. ... & Beymer, P. N. (2017, April). *A design-based intervention on flipped instruction: Longitudinal effects on undergraduates' engagement and achievement*. Paper presented at the Annual Meeting of the American Educational Research Association, San Antonio, TX.
- Mikeska, J. N., Rosenberg, J. M., Holtzman, S., & McCaffrey, D. (2017, April). *Comparing the alignment between two observational measures of science teachers' instructional practice*. Poster presented at the National Association for Research in Science Teaching Annual International Conference, San Antonio, TX.
- Greenhalgh, S. P., Rosenberg, J. M., & Koehler, M. J. (2017, March). *Avoiding madness in our methods*. Paper presented at the Society for Information Technology and Teacher Education International Conference 2017, Austin, TX.
- Rosenberg, J. M., Akcaoglu, M., Staudt Willet, K. B., Greenhalgh, S. P., & Koehler, M. J. (2017, March). *A tale of two Twitters: Synchronous and asynchronous use of the same hashtag*. In P. Resta & S. Smith (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2017* (pp. 283-286). Waynesville, NC: Association for the Advancement of Computing in Education (AACE).
- Kessler, A., & Rosenberg, J. M. (2017, March). *Considering how teachers' TPACK is leveraged during the mental engineering of instruction: A theory of action*. Paper presented at the Society for Information Technology and Teacher Education International Conference 2017, Austin, TX.
- Nyland, R., Greenhalgh, S. P., Rosenberg, J. M., Koehler, M. J., Veletsianos, G., & Kimmons, R. (2016, October). *Public data mining methods, ethics, & legalities*. Panel presented at the Association for Educational Communications and Technology International Convention 2016, Las Vegas, NV.
- Rosenberg, J. M., Greenhalgh, S. P., & Wolf, L. G. (2016, October). *Participating from near and far: Analyzing online graduate learning communities with social network analysis*. Paper presented at the Association for Educational Communications and Technology International Convention 2016, Las Vegas, NV.
- Rosenberg, J. M. (2016, October). *Having agency in conditions that are not equitable: An examination of Donors Choose data*. Paper presented at the Association for Educational Communications and Technology International Convention 2016, Las Vegas, NV.
- Phillips, M., Koehler, M. J., & Rosenberg, J. M. (2016, September). *Contextualising teachers' TPACK development and enactment*. Paper presented at the Australian Council for Computers in Education, Brisbane, Australia.
- Rosenberg, J. M. & Schwarz, C. V. (2016, April). Examining fifth and sixth grade students' epistemic considerations through an automated analysis of embedded assessment items. In B. Reiser (Chair), *Longitudinal studies of elementary and middle school students' epistemic considerations through participation in scientific practice*. Related paper set presented at the National Association for Research in Science Teaching Annual International Conference, Baltimore, MD. (slides)
- Rosenberg, J. M. & Krist, C. (2016, April). *Characterizing students' epistemic considerations: An automated computational approach for embedded assessment responses*. Poster presented at the National Association for Research in Science Teaching Annual International Conference, Baltimore, MD. (slides)
- Ranellucci, J., Rosenberg, J. M., Klautke, H., Robinson, K. A., Saltarelli, W., Linnenbrink-Garcia, L., & Roseth, C. J. (2016, April). *Achievement goals, behavioral engagement, and achievement in a flipped*

- undergraduate anatomy course*. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC.
- Lee, Y.-K., Rosenberg, J. M., Robinson, K. A., Klautke, H., Seals, C., Saltarelli, W., Linnenbrink-Garcia, L., & Roseth, C. J. (2016, April). *Comparing motivation and achievement in a flipped and traditional classroom*. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC.
- Wormington, S. V., Lee, Y.-K., Seals, C., Rosenberg, J. M., Saltarelli, W., Roseth, C. J., & Linnenbrink-Garcia, L. (2016, April). *Predicting profile permanence: When is motivation stable, why does it change, and what are the consequences?* Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC.
- Ranellucci, J., Robinson, K. A., Rosenberg, J. M., Saltarelli, W., Roseth, C. J., & Linnenbrink-Garcia, L. (2016, April). *Comparing emotions in-class and during online video lectures in a flipped classroom*. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC.
- Rosenberg, J. M., Ranellucci, J., Lee, Y.-K., Robinson, K., Saltarelli, W., Linnenbrink-Garcia, L., & Roseth, C. J. (2016, March). *Patterns of engagement in a flipped undergraduate anatomy class and their relations to achievement*. Paper presented at the Society for Information Technology & Teacher Education Annual Conference, Savannah, GA.
- Rosenberg, J. M. (2015, November). *Examining what teachers and researchers discuss at science education conferences through a computational analysis of Twitter data*. Paper presented at the meeting of the Association for Educational Communications and Technology, Indianapolis, IN.
- Rosenberg, J. M., Akcaoglu, M., Hamilton, E., Greenhalgh, S. P., & Koehler, M. J. (2015, November). *Tweeting U.S.A.: An examination of State Educational Twitter Hashtags (SETHs)*. Paper presented at the meeting of the Association for Educational Communications and Technology, Indianapolis, IN.
- Greenhalgh, S. P., Rosenberg, J. M., Keenan, S., & Koehler, M. J. (2015, November). *An investigation of the use of digital portfolios for understanding educators' technology knowledge*. Paper presented at the meeting of the Association for Educational Communications and Technology, Indianapolis, IN.
- Hamilton, E., Rosenberg, J. M., & Akcaoglu, M. (2015, November). *Examining the Substitution Augmentation Modification Redefinition (SAMR) Model for instructional design and technology integration*. Paper presented at the meeting of the Association for Educational Communications and Technology, Indianapolis, IN.
- Mehta, R., Rosenberg, J. M., Russo, T., Arnold, B., Marich, H., & Bell, J. (2015, November). *A survey of social media use and the effects of a social media initiative on graduate student engagement*. Paper presented at the meeting of the Association for Educational Communications and Technology, Indianapolis, IN.
- Rosenberg, J. M., & Koehler, M. J. (2015, April). Context and Technological Pedagogical Content Knowledge: A content analysis. In J. M. Rosenberg & M. J. Koehler (Chairs), *Addressing the complexity of teaching with technology: Context and Technological Pedagogical Content Knowledge*. Symposium conducted at the American Educational Research Association Annual Meeting, Chicago, IL.
- Hamilton, E., Rosenberg, J. M., & Akcaoglu, M. (2015, April). *The Substitution Augmentation Modification Redefinition (SAMR) framework for technology integration: Challenges to its use for guiding K-12 teacher's pedagogy and practice*. Paper presented at the American Educational Research Association Annual Meeting, Chicago, IL.
- Rosenberg, J. M., Ervin, L., Harris, J., Greenhow, C., Kessler, A., & Tai, D. (2015, March). *How should*

*educational technology researchers consider context? An interactive discussion on context and teaching and learning with technology.* Panel presented at the meeting of the Society for Information Technology and Teacher Education International Conference, Las Vegas, NV.

- Akcaoglu, M., & Rosenberg, J. M. (2015, March). *Best practices for designing synchronous and asynchronous online teaching for adult learners.* Poster presented at the meeting of the Society for Information Technology and Teacher Education, Las Vegas, NV.
- Rosenberg, J. M., Schwarz, C. V., & Lee, S. W.-Y., & Akcaoglu, M. (2015, April). A comparative longitudinal case study of the use of scientific modeling in the pedagogical practice of two fifth-grade science teachers. In A. Lo (Chair), *Leveraging the epistemic dimensions of scientific practice to support students' meaningful engagement in modeling.* Related paper set presented at the National Association for Research in Science Teaching Annual International Conference, Chicago, IL.
- Rosenberg, J. M., Schwarz, C.V., Akcaoglu, M., & Lee, S.W-Y. (2014, October). *Comparative longitudinal case studies of two middle school teachers' use of scientific modeling.* Poster presented at the Advances in Educational Psychology Conference. Fairfax, VA.
- Lee, M., Schwarz, C. V., Ke, L., & Rosenberg, J. M. (2014, April). *Analyzing fifth-grade students' engagement in scientific modeling: Changes in students' epistemologies-in-practice over time.* Paper presented at the meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Ke, L., Schwarz, C. V., Lee, M. & Rosenberg, J. M. (2014, April). *Examining elementary students' attention to mechanism as they engage in scientific modeling across content areas.* Paper presented at the meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Koehler, M. J., Rosenberg, J. M., Greenhalgh, S., Zellner, A. L., & Mishra, P. (2014, March). Analyzing students' portfolios for the development of TPACK. In J. Voogt (Chair), *Artifacts demonstrating teachers' technology integration competencies.* Symposium presented at the meeting of the Society for Information Technology and Teacher Education, Jacksonville, FL.

## Other Presentations

- Gibbons, B., Bui, H., +Mann, M., +Longnecker, J., Dyer, E., & Rosenberg, J. M. (2021, January). *Insights on the current and preferred integration of computer science into K-8 education in Tennessee.* Presentation at the 15th Annual Tennessee STEM Education Research Conference. <https://www.pechakucha.com/presentations/insights-on-the-current-and-preferred-integration-of-computer-science-into-k-8-education-in-tennessee>
- Rosenberg, J. M., +Sultana, O., +Mann, M., +Carter, B., +Kenner, N., & +Edwards, A. (2021, January). *How can K-12 science learners analyze data in creative and ambitious ways? Early findings from a design-based research project.* Presentation at the 15th Annual Tennessee STEM Education Research Conference.
- Rosenberg, J. M., Dyer, E. B., Anderson, D. J., & Fischer, C. (September, 2020). *If you're happy and you know it, post a tweet? A study of the sentiment of posts to the #NGSSchat hashtag on Twitter.* Presentation at the AERA Satellite Conference on Educational Data Science, Stanford, CA.
- Dyer, E. B., Rosenberg, J. M., Bosch, N., Krist, C., & D'Angelo, C. (September, 2020). *Better together? Initial findings and implications from combining qualitative coding and computational methods to analyze classroom audiovisual data.* Presentation at the AERA Satellite Conference on Educational Data Science, Stanford, CA.

- Anderson, D., Rosenberg, J. M., Sáez, L., & Seeley, J. R. (September, 2020). *Using extreme gradient boosting to estimate community effects on school readiness*. Presentation at the AERA Satellite Conference on Educational Data Science, Stanford, CA.
- Estrellado, R. A., Bovee, E. A., Mostipak, J., Rosenberg, J. M., & Velásquez, I. C. (July, 2020). *Expanding R into education*. Presentation at the useR conference, St. Louis, MO. (conference canceled)
- Rosenberg, J. M., Qinyun, L., Xu, R., Maroulis, S., & Frank, K. A. (July, 2020). *The konfound R package and Shiny app for robustness analysis*. Presentation at the useR conference, St. Louis, MO.
- Rosenberg, J. M., & Lishinski, A. (January, 2020). *Measuring what matters in-the-moment: An experience sampling approach to understanding the development of interest in computer science*. Presentation at the 14th Annual Tennessee STEM Education Research Conference, Cookeville, TN.
- Rosenberg, J. M., Hodge, L., Aydeniz, M., Schmidt, A., Lishinski, A., Rich, K., +Longnecker, J., +Mann, M., & Sadovnik, A. (January, 2020). *A survey of teachers and administrators regarding the implementation of new K-8 computing education standards in Tennessee*. Presentation at the 14th Annual Tennessee STEM Education Research Conference, Cookeville, TN.
- Camponovo, M., +Lawson, M. A., & Rosenberg, M. J. (July, 2019). *Integrating geospatial tech with math and science pre-service teachers. 2019 Education Summit @ ESRI UC*. San Diego, CA.
- Jones, R. S., & Rosenberg, J. M. (February, 2019). *Latent class modeling of whole class discussions about data, statistics, and probability. Presentation at the 13th Annual Tennessee STEM Education Research Conference*, Murfreesboro, TN.
- +Lawson, M., Rosenberg, J. M., & Camponovo, M. (February, 2019). *Better together? Findings from a combined, integrated STEM unit with pre-service mathematics and science teachers*. Presentation at the 13th Annual Tennessee STEM Education Research Conference, Murfreesboro, TN.

## Workshops (17)

- Rosenberg, J. M. & D'Angelo, C. (2022, March). *An Introduction to Data Science in Science Education Using R*. National Association for Research in Science Teaching. *Note*. This session was sponsored by the Contemporary Methods Research Interest Group (RIG).
- Kellogg, S., Jiang, S., Moore, R., & Rosenberg, J. M. (2021, August). *A LASER Focus on Understanding and Improving STEM Education*. Partnerships for Expanding STEM Education Research in STEM (AERA & ICPSR). <https://github.com/laser-institute/aera-workshop>
- Rosenberg, J. M. (2021, July). *An Introduction to Natural Language Processing in Science Education*. Workshop carried out at the Machine Learning and Computer-Based Text Analysis conference, Kiel, Germany. <https://joshuamrosenberg.com/post/2021/07/19/an-introduction-to-natural-language-processing-in-science-education/>
- Parr, E. D., Dyer, E. B., Rosenberg, J. M., D'Angelo, C., Lishinski, A., & Krist, C. (2021, June). Leveraging the power of visualization in the analysis of classroom audiovisual data <https://tca2.education.illinois.edu/isls-2021/isls-2021-workshop>
- Rosenberg, J. M. (2021, June). *Data Visualization and Text Analysis Using R*. Workshop carried out at Southern Wesleyan University, <https://github.com/jrosen48/data-viz-and-qual-analysis-workshop>
- Rosenberg, J. M. (2021, May). *An Introduction to Machine Learning Using R for Science Education Research*. Workshop carried out at the Machine Learning and Computer-Based Text Analysis conference, Kiel,

- Germany. <https://github.com/jrosen48/ML-in-Science-Education-Workshop-Materials>
- Sorge, S., Kubsch, M., Rosenberg, J. M., & D'Angelo, C. (2021, April). *Rethinking how you understand your data with R*. Workshop carried out at the National Association for Research in Science Teaching.
- Dyer, E. B., D'Angelo, D., Bosch, N., Krist, C., & Rosenberg, J. M. (2020, June). *Analyzing learning with speech analytics and computer vision methods: Technologies, principles, and ethics*. Workshop carried out at the International Conference of the Learning Sciences, Nashville, TN.
- Staudt Willet, K. B., Rosenberg, J. M., & Greenhalgh, S. P. (2020, March). *R U ready 4 R? Introduction to Analyzing Educational Internet Data Using R*. Workshop carried out for the *Students, Social Media, and Schools Research Group* at Florida State University, Tallahassee, FL.
- Rosenberg, J. M. (2020, January). *An introduction to using R for data science (zero prerequisites required!)*. Workshop carried out for the KnoxData group, Knoxville, TN.
- Rosenberg, J. M., Staudt Willet, K. B., & Greenhalgh, S. P. (2019, October). *Online data and open source tools: Analyzing educational internet data Using R*. Workshop carried out at the Association for Educational Communications and Technology, Las Vegas, NV.
- Rosenberg, J.M. (September, 2019). *An introduction to data science in education using R*. Workshop at Middle Tennessee State University. Middle Tennessee State University, Murfreesboro, TN.
- Rosenberg, J. M. (2019, June). *The use of mixed effects models for analyzing complex data*. Presentation for the KnoxData group, Knoxville, TN. YouTube recording: <https://www.youtube.com/watch?v=1YY2FoCFIm4>
- Rosenberg, J. M. (2019, May). *Won't you be my neighboR? An introduction to R for data science in education*. Workshop carried out for the Educational Psychology and Educational Technology program, Michigan State University.
- Anderson, D. J., and Rosenberg, J. M. (2019, April). *Transparent and reproducible research with R*. Workshop carried out at the Annual Meeting of the American Educational Research Association, Toronto, Canada.
- Rosenberg, J. M. (2017, April). *Introduction to R for Data Analysis*. Presentation at the School of Criminal Justice, Michigan State University.
- Rosenberg, J. M. (March, 2016). *An introduction to R for programming and statistical analysis in education*. Georgia Southern University College of Education, Statesboro, GA.

## Outreach and Engagement (11)

- Rosenberg, J. M., & Narvaiz, S. (2022, April). *What is data science and what do data scientists do? A presentation at L&N STEM Academy* (L&N STEM Career Connections presentation and presentation to two AP Computer Science Principles courses). <https://tinyurl.com/stem-data-sci>
- Rosenberg, J. M. (2021, November). *Analyzing and interpreting scientific data with DataClassroom*. Knox County Schools District Learning Day. <https://joshuamrosenberg.com/kcs-dld-2021-11-02-analyzing-scientific-data.pdf>
- Rosenberg, J. M. (2021, August). *Tools and Strategies to Work with Data in the Science Classroom*. Knox County Schools District Learning Day. <https://bit.ly/kcs-dld>
- Rosenberg, J. M. (2021, April). *Discussion of Teaching Data Science*. Presentation for the Data Science in Education Using R book club. <https://github.com/r4ds/bookclub-dsieur>

- D'Angelo, C., & Rosenberg, J. M. (2021, April). *Analyzing Education Data with Open Science Best Practices, R, and OSF*. Webinar through the Center for Open Science. <https://www.youtube.com/watch?v=WxdWzTlZYMl>
- Rosenberg, J. M. (2020, April). *An informal, open introduction to using R Markdown in education*. Virtual workshop. <https://www.youtube.com/watch?v=BA1YFvmXCXQ&t=57s>
- Rosenberg, J. M. (2019, May). *Working with data in education: Using data and supporting students to use data*. Workshop carried out for teachers at Knoxville Jewish Day School. <https://docs.google.com/presentation/d/1uSdRvF2GjhUpO2fCHZIUdXmf0texzczGGlbzmZBgggw/edit?usp=sharing>
- Trout-Fryxell, B., & Rosenberg, J. M. (2020, February). *Authentic science in the classroom with MEGA:BITESS*. Presentation at the Knox County Schools Science Department District Learning Day, Knoxville, TN.
- Ranellucci, J., & Rosenberg, J. M. (2016, February). *Motivating our students: A partnership between Michigan Virtual Schools and Michigan State University*. Workshop at Michigan Virtual University, East Lansing, MI.
- Rosenberg, J. M. (2014, April). *Action research with mobile devices and other “disruptive” technologies*. Presentation at the Best of the Michigan Association for Computer Users in Learning Conference, Waterford, MI.
- Rosenberg, J. M. (2014, February). *Action research with mobile devices*. Presentation at the Michigan Association for Computer Users in Learning Mobile Learning Conference, Kalamazoo, MI.
- Sawaya, S., & Rosenberg, J. M. (2014, February). *Master of Arts in Educational Technology Mobile Learning Workshop*. Workshop at Michigan State University, East Lansing, MI.

## Teaching

### Teaching Awards

*MSU-AT&T Instructional Technology Award: Best Online Course, 2014*

*MSU-AT&T Instructional Technology Award (Honorable Mention): Best Online Course, 2013*

### Courses Taught

Instructor at the University of Tennessee, Knoxville:

*Foundations of Educational Data Science I* (TPTE 680, M.A. and Ph.D. class)

*Foundations of Educational Data Science II* (STEM 685, M.A. and Ph.D. class) *Visualizing Data Using R* (STEM 691, M.A. and Ph.D. class)

*Capstone in Educational Data Science* (STEM 695, M.A. and Ph.D. class)

*STEM Education Seminar* (STEM 612, Ph.D. class). *Trans-Departmental Seminar II* (TPTE 605, Ph.D. class)

*Nature of Mathematics and Science Education* (SCED 572, M.A. and Ph.D. class)

*Teaching Science in Grades 7-12* (TPTE 495, SCED 496, & SCED 543, B.S. & M.A. class)

*VolsTeach Step 1 and Step 2* (TPTE 110 & TPTE 120, undergraduate-level class)

Instructor at Michigan State University:

*Psychology of Learning in School and Other Settings* (CEP 800, M.A. class)

*Approaches to Educational Research* (CEP 822, M.A. class)

*Technology and Leadership* (CEP 815, M.A. class)

Teaching Assistant at Michigan State University:

*Proseminar in Educational Psychology and Educational Technology* (CEP 900, Ph.D. class)

*Proseminar in Educational Technology* (CEP 807 / ED 870, M.A. class)

*Educational Inquiry* (CEP 900, Ph.D. class)

*Social-Emotional Development Across the Lifespan* (CEP 904, Ph.D. class)

## Service

### Editorial Service

Associate Editor, *Journal of Statistics and Data Science Education*, 2023 - Present

Editorial Review Board Member, *Review of Educational Research*, 2022 - Present

Editorial Review Board Member, *Journal of Research on Technology in Education*, 2016 - Present

Editorial Review Board Member, *Contemporary Issues in Technology and Teacher Education (Science Education Section)*, 2019 - 2022

Special Section Editor, *British Journal of Educational Technology*, 2022

Editorial Review Board Member, *Journal of Research in Science Teaching*, 2019-2022

Special Issue Editor, *Australasian Journal of Educational Technology*, 2017

### Service to the Profession

Reviewer, Best Paper Award, Technology as an Agent of Change in Teaching and Learning SIG, American Educational Research Association, 2023

Ad-Hoc Reviewer, Discovery Research K-12 (three proposals), *n.d.*

Ad-Hoc Reviewer, Advancing Informal STEM Learning, National Science Foundation (one proposal), *n.d.*

Panelist, Innovative Technology Experiences for Students and Teachers (ITEST), National Science Foundation, *n.d.* (two panels)

Co-chair, TPACK SIG, Society for Information Technology and Teacher Education, 2015-2017

Panelist, Building Capacity in STEM Education Research (BCSER), National Science Foundation, *n.d.*

Panelist, Discovery Research PreK-12 (DRK-12), National Science Foundation, *n.d.*

External Reviewer, Application for Promotion to Professor, Elon University, 2021

Member, OpenSciEd Research Agenda (Assessment) working group, 2021

Conference Committee Member, Southeastern STEM Education Research Conference, 2021-2022

American Educational Research Association, Division C, Section 1D: Science Program Co-Chair, 2019-2021

Co-chair, TPACK SIG, Society for Information Technology and Teacher Education, 2015-2017

Membership Committee, Division 15 (Educational Psychology), American Psychological Association (APA), 2014-2017

Associate Chair, TPACK SIG, Society for Information Technology and Teacher Education, 2014-2015

### **Service to the Community**

Mentor, TN Promise (2022-2023; mentor to 12 college-going students)

Mentor, Diversity in Learning Analytics and Leadership program, <https://www.diversityindataandleadershipprogram.com/>

Reviewer, Proposals from Knox County Schools students for the NASA Student Spaceflight Experiment program

### **Ad-hoc Journal Article Reviews**

- AERA Open (2019, 2020)
- British Journal of Educational Technology (2016)
- Computers & Education (2016, 2017, 2018, 2020)
- Contemporary Educational Psychology (2018)
- Educational Researcher (2020)
- Educational Psychologist (2021)
- Educational Studies in Mathematics (2020)
- Educational Technology Research & Development (2020)
- E-Learning and Digital Media (2016: 2)
- Journal of the Learning Sciences (2019)
- Journal of Open Source Software (2018; 2020)
- Journal of Science Education and Technology (2019: 2; 2020)
- Journal of STEM Education Research (2019)
- Science Education (2021)
- TechTrends (2019)
- Technology Innovations in Statistics Education (2022)
- Transactions on Computing Education (2021)

- Urban Education (2023).

### **University service**

2022-2023, AI Visioning Working Group (Co-Chair, Education Committee), AI Tennessee Initiative, UTK  
2021-2023, Data Science Faculty Committee, UTK

### **College-related Service**

2023-2024, Search Co-Chair, Assistant/Associate Professor of Educational Data Science, *Department of Theory and Practice in Teacher Education*, UTK,  
2021-2022, Search Committee Member, Two Tenure Track positions in Learning Design and Technology and Instructional Technology, *Department of Educational Psychology and Counseling*, UTK  
2020, Facilitator, Quality Research and Scholarship working group, UTK  
2019, Member, Online Academic Programs Investment and Growth Plan ad-hoc committee, UTK  
2018-2019, Organizer, Quantitative Methods Research Group, UTK

### **Departmental Service**

*University of Tennessee, Knoxville*

2022-Present, STEM Education Seminar Ad-Hoc Committee, TPTE, UTK  
2022, 2023, Peer Teaching Observer, TPTE, UTK  
2022-, STEM Education Seminar Series Ad-hoc Committee, TPTE, UTK  
2021-, Institutional Review Board Departmental Representative (Quantitative), TPTE, UTK  
2021-, Communications Committee, TPTE, UTK  
2021, Member, Annual Review Rubrics Committee, UTK

*Michigan State University*

2015, Search Committee Member, Program Specialist, Master of Arts in Educational Technology Program, Michigan State University

### **Program Service and Service on Student Committees**

*University of Tennessee, Knoxville*

Advisor for Doctoral students:

- 2023-: Cody Pritchard
- 2021-: Amanda Garner
- 2021-: Emily McDonald
- 2020-: Omiya Sultana

- 2023-: Wei Wang
- 2023-: Hanhui Bao
- 2019-2021: Jennifer Longnecker (graduated 2021)

Committee Member for Doctoral students:

- 2019-2023: Maryrose Weatherton (Department of Ecology and Evolutionary Biology, UTK)
- 2022-: Amanda Zeller (TPTE)
- 2020-2022: Anthony Schmidt (Department of Educational Psychology & Counseling, UTK)
- 2021-: Donna Wortham (Educational Leadership & Policy Studies, UTK)
- 2020-2023: Sarah Narvaiz (Department of Educational Psychology & Counseling, UTK)
- 2021-2023: Anna Sintsova Banks (Department of Educational Psychology & Counseling, UTK)
- 2021-: John Mooneyham (TPTE)
- 2019-2021: Matthew Hensley (graduated 2021)
- 2018-2020: Shande King (graduated 2020)

### Campus and Departmental Presentations

- Crouter, S., Gibbons, M., Kim, Y.-K., Moore, T., & Rosenberg, J. M. (2022, April). *National recognition in research/scholarship*. Panel discussion in the College of Education, Health, and Human Sciences. *Note*. I was the moderator for this panel discussion.
- Rosenberg, J. M. (2022, March). *What is the role of data science in K-12 (pre-collegiate) teaching and learning?* Data Science and Statistics Seminar Series, Department of Mathematics, UTK. <https://joshuamrosenberg.com/post/2022/03/24/what-is-the-role-of-data-science-in-k-12-teaching-and-learning/>
- Bui, H., Dyer, E., & Rosenberg, J. M. (2021, November). *Teachers' familiarity with the new CS standards and their readiness to implement the subject*. Presentation at the Undergraduate Research Experience and Creative Activity Open House, Middle Tennessee State University.
- Bui, H., Dyer, E., & Rosenberg, J. M. (2021, November). *Level of barriers in CS implementation of TN elementary and middle school teachers vs national high school teachers*. Presentation at the Undergraduate Research Experience and Creative Activity Open House, Middle Tennessee State University.
- Bui, H., Dyer, E., & Rosenberg, J. M. (2021, November). *The application of IRT in analyzing teachers' responses about Computer Science implementation*. Presentation at the Undergraduate Research Experience and Creative Activity Open House, Middle Tennessee State University.
- Thomas, T., & Rosenberg, J. M. (2021, August). *Exploring racism in the context of K-12 educational institutions' social media posts*. 7th Annual Discovery day, University of Tennessee, Knoxville.
- Rosenberg, J. M. (2020, January). *Multiple uses for multi-level models: Examples from recent research*. Presentation for the College of Education, Health, and Human Sciences Quantitative Methods Brownbag

Seminar, Knoxville, TN.

- Rutherford, T., & Rosenberg, J. M. (2019, February). *Motivational correlates of choice after failure within an elementary mathematics software*. Presentation at the NC State College of Education Celebration of Research.
- Rosenberg, J. M. (2019, January). *Engaging students in science: Findings from an experience sampling method approach*. Presentation at the East Tennessee STEM Hub Crossing Boundaries for STEM Teaching regional meeting and mini-conference. Knoxville, TN.
- Rosenberg, J. M., Beymer, P. N., & Schmidt, J. A. (2017, February). *Does choosing the problem or topic matter? Using a person-in-context approach to understand student engagement in science*. Poster presented at the Create4Stem MiniConference 2017, East Lansing, MI.
- Rosenberg, J. M. (2016, April). *Momentary engagement profiles: An examination of student engagement in science settings using experience sampling methodology*. Presentation at the Michigan State University Educational Psychology and Educational Technology Program Informal Colloquium, East Lansing, MI.
- Rosenberg, J. M., & Schwarz, C. V. (2016, February). *Examining the development of fifth and sixth grade students' epistemic considerations over time through an automated analysis of embedded assessment items*. Poster presented at the Create4Stem MiniConference 2016, East Lansing, MI.
- Rosenberg, J. M. (2015, September). *Achievement goals, in- and out-of-class engagement, and students' achievement in a flipped undergraduate anatomy class*. Presentation at the Michigan State University Educational Psychology and Educational Technology Program Informal Colloquium, East Lansing, MI.
- Rosenberg, J. M., Akcaoglu, M., Schwarz, C.V., & Lee, S.W-Y. (2015, February). *Comparative longitudinal case studies of two middle school teachers' use of scientific modeling*. Poster presented at the Create4Stem MiniConference 2015, East Lansing, MI.
- Lee, M., Schwarz, C.V., Ke, L., Rosenberg, J. M., Reiser, B., Berland, L., Kenyon, L., Wilson, M., Draney, K. (2015, February). *Epistemic considerations in scientific practices for elementary & middle schools*. Poster presented at the Create4Stem MiniConference 2015, East Lansing, MI.
- Wolf, L. G., Henriksen, D., Sawaya, S., & Rosenberg, J. M. (2014, December). *EdCamp with Team MAET*. Presentation at the Michigan State University Master of Arts in Educational Technology Bridge Webinar Series, East Lansing, MI.
- Rosenberg, J. M. (2014, November). *Integrating "disruptive" technologies into teaching with action research and Technological Pedagogical Content Knowledge (TPACK)*. Presentation at the Michigan State University Educational Technology Conference, East Lansing, MI.
- Wolf, L. G., Henriksen, D., Sawaya, S., & Rosenberg, J. M. (2014, March). *Mobile learning for educators*. Presentation at the Michigan State University Master of Arts in Educational Technology Bridge Webinar Series, East Lansing, MI.
- Rosenberg, J. M. (2014, February). *Context and Technological Pedagogical Content Knowledge: Preliminary results of a content analysis*. Presentation at the Michigan State University Educational Psychology and Educational Technology Program Informal Colloquium, East Lansing, MI.
- Ke, L., Lee, M., Rosenberg, J. M., & Schwarz, C.V. (2014, February). *Modeling across content areas: Examining elementary students' attention to mechanism*. Poster presented at the Create4Stem MiniConference 2014, East Lansing, MI.

Rosenberg, J. M., Rapa, L., & Wolf, L. G. (2013, February). *CEP 815 and the transition from ANGEL to Desire2Learn*. Poster presented at the 6th Annual Faculty Technology Showcase.

Rosenberg, J. M. (2012, November). *Mobile learning for teachers*. Presentation at the Michigan State University Educational Technology Conference, East Lansing, MI.

## Software

### Author of R packages on Comprehensive R Archive Network (CRAN)

Staudt Willet, B., & Rosenberg, J. M. (2022). *tidytags: Importing and Analyzing ‘Twitter’ Data Collected with ‘Twitter Archiving Google Sheets’* [R package]. <https://cran.r-project.org/web/packages/tidytags/index.html>

Rosenberg, J. M., van Lissa, C. J., Beymer, P. N., Anderson, D. J., Schell, M. J. & Schmidt, J. A. (2019). *tidyLPA: Easily carry out Latent Profile Analysis (LPA) using open-source or commercial software* [R package]. <https://data-edu.github.io/tidyLPA/>

Rosenberg, J. M., Xu, R., & Frank, K. A. (2019). *konfound: Quantify the robustness of causal inferences* [R package]. <https://jrosen48.github.io/konfound/>

Rosenberg, J. M., & Lishinski, A. (2018). *clustRcompaR: Easy interface for clustering a set of documents and exploring group-based patterns* [R package]. <https://github.com/alishinski/clustRcompaR>

### Contributor to R package on CRAN

#### Author of R packages on GitHub

Estrellado, R. A., Bovee, E. A., Mostipak, J., Rosenberg, J. M., & Velásquez, I. C. (2019). *dataedu: Package for Data Science in Education Using R*. <https://github.com/data-edu/dataedu>

Rosenberg, J. M. (2020). *tidykids: State-by-State Spending on Kids Dataset*. <https://jrosen48.github.io/tidykids/>

### Author of Interactive Web Applications

Rosenberg, J. M., Xu, R., & Frank, K. A. (2019). *Konfound-It!: Quantify the robustness of causal inferences*. <http://konfound-it.com>.

Rosenberg, J. M., & Krist, C. (2019). *Generality embedded assessment classifier*. <https://faast.shinyapps.io/generality-shiny>

### Other Projects

Lishinski, A., & Rosenberg, J. M. (2019). *Short message survey: An open-source, text-message based application for the experience sampling method*. <https://github.com/picsul/short-message-survey>

Rosenberg, J. M. (2016). Diffusion & temperature. *Lab Interactive Simulation*. <https://lab.concord.org/interactives.html#interactives/external-projects/msu/temperature-diffusion.json>



Study: Schools' Social Media Posts May Be Compromising Student Privacy, *American Educational Research Association*, November 2, 2022

The Tricky Ethics of Being a Teacher on TikTok, *Wired*, September 6, 2022

Teaching Students to Understand the Uncertainties of Science Could Help Build Public Trust, *Education Week*

School Posts on Facebook Could Threaten Student Privacy, *Tennessee News Service*

Teaching R to 7th Graders, *Flowing Data*

### Podcasts

2021, Full Stack Education podcast, <https://www.fullstackeducator.com/show-notes/season-2-episode-15-ryan-estrellado-and-joshua-rosenberg-data-science-in-education>

2021, Visions of Education podcast, <https://visionsofed.com/2021/05/27/episode-166-data-science-in-education-with-ryan-estrellado-jesse-mostipak-and-joshua-rosenberg/>

2020, Education Data Chat podcast, <https://www.buzzsprout.com/1074286/4993430>

2016, Innovative Education in VT, <https://tiie.w3.uvm.edu/blog/educators-on-twitter/#.XzkFq5NKiHE>

### Podcast

2021-, Co-host, *About Practice* podcast, <https://anchor.fm/about-practice>

2018-2019, Co-host, *Imposter Syndrome* podcast, <https://drive.google.com/drive/folders/1fwSaEKt9QzJPUIf-CYVVwPgN-pKBaAkW?usp=sharing>

### Public Engagement

Dyer, E. B., Reid, J., & Rosenberg, J. M. (2021, January 7). Science Education & Democracy [Synchronous Twitter Chat]. #NGSSchat.

Dyer, E. B., McKenna, T. J., & Rosenberg, J. M. (2020, December 3). Who are the Experts Here? [Synchronous Twitter Chat]. #NGSSchat.

Rosenberg, J. M., McKenna, T. J., & Dyer, E. B. (2020, June 18). Exploring the Impact of Our Community [Synchronous Twitter Chat]. #NGSSchat. <https://wke.lt/w/s/rqTNhr>

### Professional Affiliations

American Educational Research Association, 2012 - Present

International Society of the Learning Sciences, 2014 - Present

Learning Analytics & Knowledge, 2020 - Present

National Association for Research in Science Teaching, 2015 - Present