Enhanced Tenure-Track Review

Joshua M. Rosenberg

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A. Required Biographical Information and Criteria Statements

Educational and employment history

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, Teacher Licensure Program
University of North Carolina, Asheville

Professional Experience

2018-present, 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

Statement of Responsibilities

Dr. Joshua Rosenberg's responsibilities consist of teaching, scholarship, and service. The by-laws from the department of Theory and Practice in Teacher Education describe faculty duties as including:

> Teaching and advising; collaboration with field-based personnel for all practicum and internship experiences; coordination of student admissions and progression; service on student committees; management of curricular matters; and service on department, college, and university committees. The standard of the equivalent of four courses per semester serves as the university framework for determining instructional assignments. Faculty with active research projects or scholarly/creative products evidenced by ongoing records of publication are eligible for a reduction of this teaching load.

Dr. Rosenberg's responsibilities have been described in detail in the order of teaching, scholarship and service below.

Teaching

Dr. Rosenberg has taught courses at the specialist, master's, and undergraduate levels in science education. Specifically, he has taught:

- *Teaching Science in Grades 7-12/ Project-based Instruction in Science* (SCED 496 & SCED 543/TPTE 495, M.A. class); Fall, '18 enrollment: 14; Fall, '19 enrollment: 10; Fall, '20 enrollment: 18
- *Nature of Mathematics and Science Education* (SCED 572, M.A. and Ph.D. class): Spring '19 enrollment:
- *VolsTeach Step 1 and Step 2* (TPTE 110 & TPTE 120, undergraduate-level class): Fall '19 enrollment

In the Department of Theory and Practice in Teacher Education (TPTE) at UTK, Dr. Rosenberg co-advises three doctoral students and has served or is serving on three doctoral students' committees (two in TPTE and one in the Department of *Ecology and Evolutionary Biology*), and has served on the committees for many students in the master's degree program. Dr. Rosenberg coordinates a research group, *Making Data Science Count*, which includes a post-doctoral scholar, three doctoral students in TPTE, two doctoral students in other programs in CEHHS, four science teachers, and two undergraduate students supported by funding through the Office of Undergraduate Research. Members of this research group have been involved in conference presentations at the *AERA Annual Meeting*, *International Conference of the Learning Sciences*, *Tennessee STEM Education Research Conference*, and the *ESRI Education Summit*.

Scholarship

Dr. Rosenberg's primary research interests are in applying data science methods to questions about teaching, learning, and educational systems, and in supporting learners–especially in science–to think of and with data. Dr, Rosenberg has been productive in his research, having published 10 peer-reviewed journal articles in some of the leading educational research journals, including the *Journal of Research in Science Teaching* and *Computers & Education* as well as 10 other publications (contributions to edited books and conference proceedings papers). Dr. Rosenberg become recognized in the field, with his publications having been cited nearly 1,000 times according to Google Scholar. Particularly in data science in education, Dr. Rosenberg has become recognized as an emerging expert, as reflected in his involvement in collaborative grant-funded projects and his invitations to speak about data science in education or to carry out workshops on this topic at peer institutions and at National meetings.

Dr. Rosenberg has received external funding for his work from the National Science Foundation, the National Institutes of Health, and the United States Department of Agriculture. In total, Dr. Rosenberg has been awarded than 4M in funding as Principal Investigator (PI), Co-PI, Co-I, or senior personnel from external agencies, with more than 3M as PI, Co-PI, or Co-I. Dr. Rosenberg has also been awarded seed funding through the Community Engaged Research Seed Program at UTK, as well as funding for early-stage collaborations with colleagues at the University of Southern California and the University of Illinois, Urbana-Champaign.

Service

Dr. Rosenberg's service has primarily been in science education, educational technology, and in data science in education. Professionally, Dr. Rosenberg is serving on a three-year editorial review board term for the *Journal of Research in Science Teaching*, and is on the editorial review boards for the *Journal of*

Research on Technology in Education and *Contemporary Issues in Technology and Teacher Education*. Dr. Rosenberg also has served as an ad-hoc reviewer for some of the leading educational research journals, including *Educational Researcher*, *AERA Open*, the *Journal of the Learning Sciences*, *Computers & Education*, and *Educational Technology Research and Development*. Dr. Rosenberg is a co-chair for the science education section of Division C of the American Educational Research Association (AERA), coordinating the review process for approximately 100 annual meeting proposals in 2019-2020 and 2020-2021. Dr. Rosenberg also served as a panelist for the National Science Foundation, and has reviewed for the *National Association of Research in Science Teaching* and the *Association of Science Teacher Education* conferences.

In the College of Education, Health, and Human Sciences at UTK, Dr. Rosenberg was a member of the *Online Academic Programs Investment and Growth Plan* ad-hoc committee, is the co-facilitator of the working group on *Quality Research and Scholarship*, and is the co-organizer of the *Quantitative Methods Research Group*.

B. Teaching Ability and Effectiveness

Teaching Statement

As a former high school science teacher, I know that teaching science is challenging. My teaching philosophy for educating future teachers (and students at any level) is to involve them in what Grossman et al. (2009) describe as an approximation of practice, reflecting a view of teaching and learning as participating in the practices of the field. Accordingly, I aim to involve students in authentic practices from the field of study.

For example, in teacher education classes, this plays out giving students opportunities to both participate in as well as plan and enact activities focused upon engaging in scientific and engineering practices. Thus far, I have focused the project-based instruction science teaching methods course around this goal. In the first class of the semester, for example (including in the online offering of this class during the Fall 2020 semester), students engaged in an activity focused on developing and revising a diagrammatic model, like a logic model, for what they think effective and equitable science teaching is. In this activity, students in the course are involved in a scientific and engineering practice, scientific modeling, in a way that can lower the barrier to entry into the practice for them. In turn, this activity serves as a reference point throughout the semester as my students plan activities for theirs that involve students in modeling and other scientific and engineering practices, such as analyzing and interpreting data, a practice that is the focus (along with modeling) of my research on data science education.

In graduate-level classes, I focus on engaging students in scholarly practices, particularly critiquing and contributing to ongoing conversations about educational policy and practice. In the nature of science and mathematics course that I taught, students interviewed a scientist or a mathematician as well as a student about their views on the nature of the science. Then students compared and contrasted what they learned from their interviews with representations of the science or math discipline as represented in recent reform documents and curricular standards.

Involving students in the practices of the field extends to my work with graduate students (and particularly doctoral students), who I seek to involve in research, both as a way to expand my research and to provide opportunities for students to experience planning a study, qualitatively coding or quantitatively analyzing data, and interpreting and presenting and publishing results. The research group includes a post-doctoral scholar, three doctoral students in TPTE, two doctoral students in other programs in CEHHS, four science teachers, and two undergraduate students supported by funding through the Office of Undergraduate Research. Members of this research group have been involved in conference presentations at the *AERA Annual Meeting*, *International Conference of the Learning Sciences*, *Tennessee STEM Education Research Conference*, and the *ESRI Education Summit*, and in publishing a journal article (in *Education Sciences*) and a chapter in an edited book.

In sum, my teaching philosophy is centered on involving students in the practices characteristic of the discipline they are studying. In teacher education classes, this means that students have the opportunity to engage in scientific and engineering practices—and to design and carry out activities that focus on creating similar opportunities for their students. In graduate-level classes, this is implemented via course activities that ask students to enter scholarly conversations about what it means to teach and learn science (and mathematics), and to do educational research.

While my teaching is focused on engaging students in practices characteristic of their field of study, I also provide opportunities for myself and for students to encounter and to learn about the wider society. For example, I used research group meetings during the Spring 2020 semester to engage students in conversations and chances to learn about racism in America, and about how racism and inequities are manifest in our educational system, including locally in Knox County. In the course I am planning to teach on data science in education, I included understanding and addressing issues of equity, privacy, and ethics as they relate to data in education as a core objective, and I plan to design tasks and use examples that provide students with chances to learn about how data-intensive research can be used to reveal and redress disparities or exacerbate them. In this way, being involved in disciplinary practices is at the center of my teaching philosophy, but doing so does (and should) not prohibit students' development as both skillful and critical educators and researchers.

Scheduled Courses Taught

- *Teaching Science in Grades 7-12/ Project-based Instruction in Science* (SCED 496 & SCED 543/TPTE 495, M.A. class); Fall, '18 enrollment: 14; Fall, '19 enrollment: 10; Fall, '20 enrollment: 18
- *Nature of Mathematics and Science Education* (SCED 572, M.A. and Ph.D. class): Spring '19 enrollment: 3
- *VolsTeach Step 1 and Step 2* (TPTE 110 & TPTE 120, undergraduate-level class): Fall '19 enrollment: 18

Advising Responsibilities

- Co-advisor for three doctoral students
- Service on three doctoral students' committees (two in TPTE and one in the Department of *Ecology and Evolutionary Biology*)
- Served on the committees for eight students in the master's degree program.
- Coordinator of a research group, *Making Data Science Count*, which includes a post-doctoral scholar, three doctoral students in TPTE, two doctoral students in other programs in CEHHS, four science teachers, and two undergraduate students supported by funding through the Office of Undergraduate Research. Members of this research group have been involved in conference presentations at the *AERA Annual Meeting*, *International Conference of the Learning Sciences*, *Tennessee STEM Education Research Conference*, and the *ESRI Education Summit*.

Quantitative End-of-course Student Surveys

SEM/YEAR	*COURSE (HRS)*	*# STUDENTS RESPONDED/*	*UNDERSTANDING OF COURSE CONTENT*	*INVITING ATMOSPHERE*	*RESPONSE TO INQUIRIES*	*RESPECTFUL & POSITIVE*	*USEFUL FEEDBACK*	*CHALLENGING*	*WELL ORGANIZED*	*COURSE MATERIALS*
Fall 2018	TPTE 495 (3), SCED 496 (3), SCED 543 (3)	6/14	4.67	5	5	5	4.5	4.5	4.33	4.67
Spring 2019	SCED 572	1/3	NA (insufficient number of responses)	NA	NA	NA	NA	NA	NA	NA
Fall 2019	TPTE 495 (3), SCED 496 (3), SCED 543 (3)	9/10	4.89	4.89	4.89	4.89	4.89	4.89	4.67	4.67
Fall 2019	TPTE 495 (3), SCED 496 (3)	9/10	4.89	4.89	4.89	4.89	4.89	4.89	4.67	4.67
Fall 2019	TPTE 110, TPTE 120	11/18	4.4	4.3	4.6	4.8	4.1	3.8	4.1	3.7

Narrative End-of-Course Student Surveys

Fall, 2018—TPTE 495, SCED 496, SCED 543

Dr. Rosenberg did a wonderful job of maintaining a productive classroom environment and bringing a compassionate approach to a three-hour-long night class in the middle of the week. He was always accessible, and was open to feedback about ways that the course could be made more focused on a specific area of interest, or that scheduling could make our lives easier.

One of the main issues he had at the beginning of the semester was time management, but he mostly rectified [edited spelling] that by the end of the semester. Dr. Rosenberg provided a great

amount of resources for teaching and was always a good source of ideas. The only criticism that I have about Dr. Rosenberg is that he doesn't really give criticism. Dr. Rosenberg isn't yet to the point where he will tell a student that they are wrong or that they need to revise their work. There were a few times throughout the semester that I would have liked for Dr. Rosenberg to be a little bit more critical of my work to help me grow. Overall, he is a great addition to the VolsTeach team!

Spring, 2019—SCED 572

NA (insufficient number of responses)

Fall, 2019—TPTE 110, TPTE 120

Both Dr. Rosenberg and Mr. Mann were great teachers! I have learned much about teaching and lesson planning during this course.

Almost every class, we spent the entire time discussing a specific example from a specific type of lesson, when it would be much more beneficial if we focused on the the lesson type as a whole.

Fall, 2019—TPTE 495, SCED 496

He did an amazing job of encouraging collaboration and discussion between teachers. I feel that I learned a lot from him and from others in the class through his flexibility with discussions.

Superb educator. One critique, albeit small, is the structure of the course could be a bit more defined from class to class.

Peer review of teaching reports

- Dr. Mehmet Aydeniz, Fall, 2019

C. Research, Scholarship, and Creative Achievement

Research Statement

Background

When I joined UTK in 2018, I came with a foundation in educational technology and science education and an interest in how students—especially in science—come to think of and with data as a part of their learning, and their lives. While developing this interest, I published ten articles in peer-reviewed journals, six chapters in edited books, and nine conference proceedings papers. These publications were on the topics of how context matters where it comes to educational technology use (and research), students' motivation and engagement in science, and teachers' use of informal, social media-based communities for professional development. I have focused on and began to become recognized for two lines of research, one that is based in classroom and design-based research, in *data science education*, and one that is more methodological, in *data science in education.*

Data Science Education

I use the term data science education to a teaching and learning context that involves ideas related to computer science and programming, mathematics and statistics, and knowledge about a specific domain. In this way, data science education defines a set of ideas and practices that can cut across STEM content areas. I have pursued research in data science education through:

- adapting existing pedagogical approaches and technological tools, such as science simulations, to output complex, quantitative data for students to model (Rosenberg & Lawson, 2019);
- exploring how students engage in foundational aspects of data science, especially recognizing, modeling, and visualizing variability in data (Rosenberg, Schmidt, & Koehler, under review);
- and, carrying out classroom-based research with Knox County Schools (and area) science teachers to develop new approaches to support students to participate in data science, from which I wrote an article for science teachers describing strategies for working with complex, even messy data sources (Rosenberg, Edwards, & Chen, 2020).

Data Science in Education

New approaches to research such as data science allow researchers to study teaching and learning in innovative ways, but, most of the time, these approaches are used to augment existing approaches, instead of transforming how research is carried out. My second research interest concerns how scholars can use data science methods to study teaching, learning, and educational systems. I refer to this research interest as in data science in educational research. I have pursued this research especially to study learning in the context in which it takes place—and to use advanced computational and statistical methods to ask and answer questions that matter to education. I have pursued this research interest through:

- using data science methods in a way that is better aligned with the goals of educational researchers through a *computational grounded theory* approach (Rosenberg & Krist, advance online publication), including in work recently funded through the NSF (NSF Grant No. 1920796);
- planning, carrying out, and researching the design and impacts of workshops for teachers and educational researchers about data science in education (Rosenberg & Staudt Willet, in preparation)

- and, stepping back to write about the nature and process of educational data science (Rosenberg et al., in press; Rosenberg et al., in preparation), including in a book on data science in education to be published by Routledge (Estrellado et al., in press)

Summary and Future Directions

The research I have undertaken in data science education and data science in education have begun to have an impact; I have been invited to speak about these topics at multiple universities and have given workshops at multiple universities and national and international conferences. Since beginning at UTK, I have published 10 journal articles, with an additional five available as advance online publications, including first-authored publications in the *Journal of Research in Science Teaching* and the *Journal of Science Education and Technology*. I have also led and have been invited to be involved in collaborative educational data science projects; for example, I co-organized a proposal for a session that was accepted for presentation at the 2020 Annual Meeting of the American Educational Research Association. In addition to presenting and publishing about my research, open access to scholarship and open science are important to my research. Since August 2018, my website has been accessed by 13,956 individuals, with the majority of page views being about data science in education, including more than 5,000 views of posts related to the open-access *tidyLPA* software I developed; the *tidyLPA* software has been downloaded 18,737 times, and this software was highlighted in a funded proposal for a STEM Education Resource Hub as one of three examples of the type of work they would aim to amplify.

My research related to data science led to my being invited to collaborate on a proposal for a three-year, NSF-funded research institute for educational researchers to strengthen their ability to do data science which was recently funded (NSF Grant No. 2025090) and to the submission of a large, collaborative grant proposal focused on data science education in science education to NSF's ITEST program (in August 2020). To this point, I have received more than 3M in external funding for my research as Principal Investigator (PI), Co-PI, or Co-I, as well as more than $35,000 in seed funding.

My future work will build on the work I have done since beginning at UTK in three ways. First, I will explore specific approaches for supporting students to work with data in more accessible ways; this *Bayesian* approach is under-used and under-explored in the field but could align with how children already think about the world, and how professionals increasingly work with data (Rosenberg, 2020). My future work will also draw upon my past work in educational technology to explore how computational tools (and computational thinking) can support students to work with data in more ambitious ways, and how teachers can support students to do so. One particular direction for this work concerns exploring how block-based programming languages—used in computer science education—might help students to learn to think of and with data. Finally, I am to merge my primary lines of research in more meaningful ways by exploring how data science methods can be used to help to tell the story of how students come to work with data; for example, I am interested in using learning analytics methods that can use digital data sources to understand the processes through which students work with data.

List of Scholarly Publications

Articles published in refereed journals

Rosenberg, J. M., & Krist, C. (advance online publication). Combining machine learning and qualitative methods to elaborate students' ideas about the generality of their model-based explanations. *Journal of Science Education and Technology*.

https://link.springer.com/article/10.1007%2Fs10956-020-09862-4. *Nb.* Both authors contributed equally.

Rosenberg, J. M., Reid, J., Dyer, E., Koehler, M. J., Fischer, C., & McKenna, T. J. (advance online publication). 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*. 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. (advance online publication). What should teacher educators know about technology? Perspectives and self-assessments. *Teaching and Teacher Education*. https://doi.org/10.1016/j.tate.2020.103124

Ranellucci, J., Rosenberg, J. M., & Poitras, E. (advance online publication). Exploring pre-service teachers' use of technology: The technology acceptance model and expectancy-value theory. *Journal of Computer Assisted Learning*. http://dx.doi.org/10.1111/jcal.12459

Anderson, D. J., Rowley, B., Stegenga, S., Irvin, P. S., & Rosenberg, J. M. (advance online publication). Evaluating content-related validity evidence using a text-based, machine learning procedure. *Educational Measurement: Issues and Practice*. https://onlinelibrary.wiley.com/doi/abs/10.1111/emip.12314

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

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

Book

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

Contributions to Edited Volumes

Rosenberg, J. M., Lawson, M. A., Anderson, D. J., & Rutherford, T. (in press). Making data science count in and for education. In E. Romero-Hall (Ed.), *Research Methods in Learning Design & Technology*.. Routledge: New York, NY.

Greenhalgh, S. P., Staudt Willet, B., Rosenberg, J. M., & Koehler, M. J. (in press). Lessons learned from applying Twitter research methods to educational technology phenomena. In E. Romero-Hall (Ed.), *Research Methods in Learning Design & Technology*. Routledge: New York, NY.

Dai, T., Rosenberg, J. M., & Lawson, M. A. (in press). Data representation. In T. L. Good & M. McCaslin (*Eds.*), Educational Psychology Section; D. Fisher (*Ed.*), Routledge Encyclopedia of Education (Online). Taylor & Francis: New York, NY.

Eidelman, R., Rosenberg, J. M. ,& Shwartz, 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.

Papers Published in Refereed Conference Proceedings

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.

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.

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.

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.

Carpenter, J., Rosenberg, J. M., Dousay, T., Romero-Hall, E., Trust, T., Kessler, A., Phillips, M., Morrison, S., Fischer, C. & Krutka, D. (2019). What do teacher educators think of teacher education technology competencies?. In K. Graziano (Ed.), Proceedings of Society for Information Technology & Teacher Education International Conference (pp. 796-801). Las Vegas, NV, United States: Association for the Advancement of Computing in Education (AACE). Retrieved April 18, 2019 from https://www.learntechlib.org/primary/p/207735/.

Articles Published in Non-Refereed Journals

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

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

Manuscripts submitted for publication

Rosenberg, J., Borchers, C., Dyer, E. B., Anderson, D., & Fischer, C. (under review). Advancing new methods for understanding public sentiment about educational reforms: The case of Twitter and the Next Generation Science Standards. *AERA Open*. Pre-print: https://doi.org/10.31219/osf.io/xymsd. Submitted October, 2020.

Rosenberg, J. M., & Staudt Willet, K. B. (under review). Balancing Participants' Privacy and Open Science in the Context of COVID-19: A Response to Ifenthaler & Schumacher (2016). *Educational Technology Research and Development*. Submitted July, 2020. *Nb.* This was an invited submission.

Akcaoglu, M., Rosenberg, J.M., Hodges, C., & Hilpert, J. (under review). An Exploration of Factors Impacting Middle School Students' Attitudes Toward Computer Programming. *Computers in the Schools.* Submitted May, 2020.

Ranellucci, J., Robinson, K., Lee, Y.-K., Rosenberg, J.M., Roseth, C. J., & Linnenbrink-Garcia, L. (under review). Comparing the Roles and Correlates of Emotions in Class and During Online Video Lectures in a Flipped Anatomy Classroom. *Contemporary Educational Psychology.* Submitted June, 2020.

Rosenberg, J. M., Schmidt, J. A., & Koehler, M. J. (under review). How youth experience work with data in summer STEM programs: Findings from an experience sampling approach. *International Journal of STEM Education.* Submitted March, 2019.

Projects, Grants, Commissions, and Contracts

Completed

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.

Funded and in-progress

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.

2020-2025, Co-Investigator (Co-I), *Imagining Possibilities in Post-Secondary Education and STEMM in Rural Appalachia.* ($1,208,563), National Institutes of Health.

2020-2023, Senior Personnel, *Learning analytics in STEM education research institute* ($993,150; *PI*, Shaun Kellogg, North Carolina State University; UTK subcontract: $54,691). NSF. (NSF Grant No. 2025090)

2020-2021, Co-Principal Investigator (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, University of Tennessee, Knoxville). 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; University of Tennessee, Knoxville [UTK] subcontract: $101,469). NSF. https://tca2.education.illinois.edu/ (NSF Grant No. 1920796)

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/

Under Review

2021-2024, Co-Principal Investigator, *Collaborative Research: Developing and Testing Innovations: Pairing Pencil-and-Paper and Digital Approaches to Advance Data Literacy in the Science Classroom* ($1,498,222)

2021-2025, Co-Principal Investigator, *Community, Opportunity, and Disparity in Educational Systems: Project CODES* ($1,399,808), Institute of Education Sciences

2021-2024, Co-Principal Investigator, *Quantifying the Robustness of Causal Inferences: Extensions and Application to Existing Databases* ($899,667), Institute of Education Sciences

Papers presented at technical and professional meetings

Peer-Reviewed Conference Presentations at International/National Conferences

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 cancelled)

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 cancelled)

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 cancelled)

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 cancelled)

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 cancelled)

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 cancelled)

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 cancelled).

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 cancelled).

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 cancelled).

Rosenberg, J. M., & Lishinski, A. (2020, March). *Accruing Interest: What experiences contribute to students developing a sustained interest in computer science over time?*. Lightning talk at the Special Interest Group on Computer Science Education Technical Symposium, Portland, OR. YouTube recording: https://www.youtube.com/watch?v=ZHTLejxTYbs (Conference cancelled)

Lishinski, A., & Rosenberg, J. M. (2020, March). *Variable interest rate: What experiences explain differences in interest in computer science among students?*. Birds of a feather presentation at the Special Interest Group on Computer Science Education Technical Symposium, Portland, OR. (Conference cancelled)

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. (*Nb. 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.

Invited Talks

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.

Other Presentations

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.

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.

Record of participation in, and description of, seminars and workshops

Early Career Workshop, International Conference of the Learning Sciences, 2020

New Faculty Mentoring Program, AERA Division C, 2019

National Science Foundation Fall Grants Conference, 2018

Record of invitations to conduct workshops, master classes, seminars, etc. at other institutions

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.

Rosenberg, J. M. (June, 2020). *Data science in education using R*. Workshop carried out as a part of the doctoral program residency at Southern Wesleyan University.

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

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, Talahassee, 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.

Optional indicators of quality

Fellowships and Awards

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, University of Tennessee, Knoxville (UTK)

2019, Finalist, Association for Science Teacher Education John C. Park National Technology Leadership Institute Fellowship

Media

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

2020, COS Receives NSF Award to Create STEM Education Resource Hub, https://www.cos.io/about/news/cos-receives-nsf-award-create-stem-education-resource-hub

2019, Flowing Data, Teaching R to 7th Graders, https://flowingdata.com/2019/11/26/teaching-r-to-7th-graders/

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

Software

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

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., Schmidt, J. A., Beymer, P. N., & Steingut, R. (2018). *prcr: Person-Centered Analysis* [R package]. https://CRAN.R-project.org/package=prcr

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

D'Agostina McGowan, L., Hester, J., Rosenberg, J. M., & Leek, J. (2020). *tidycode: Analyze Lines of R Code the Tidy Way*. https://github.com/LucyMcGowan/tidycode

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

Anderson, D. Heiss, A., and Rosenberg, J. M. (2019). *equatiomatic: Transform Models into LaTeX Equations*. https://github.com/datalorax/equatiomatic

Velásquez, I. and Rosenberg, J. M. (2019). *leaidr: U.S. School District Shapefiles* https://github.com/ivelasq/leaidr

Seo, J., & Rosenberg, J. M. (2020). *jladown: Writing a Reproducible Article for Journal of Learning Analytics in R Markdown*. https://github.com/jooyoungseo/jladown

Staudt Willet, B., & Rosenberg, J. M. (2020). *tidytags: Simple Collection and Powerful Analysis of Twitter Data* https://github.com/bretsw/tidytags

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

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://jmichaelrosenberg.shinyapps.io/generality-shiny/

Rosenberg, J. M. (2019). *How many (MCMC) cores?* https://jmichaelrosenberg.shinyapps.io/how-many-cores/

Rosenberg, J. M. (2016). *State Educational Twitter Hashtags (SETHs)*. https://jmichaelrosenberg.shinyapps.io/SETHs/

Python-Based Web Application

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

Other Projects

I have contributed to a number of open-source projects by filing issues or making suggestions: https://github.com/search?q=is%3Aissue+author%3Ajrosen48&type=Issues

Invited Blog Posts

Open-Source Authorship of Data Science in Education, https://rviews.rstudio.com/2020/07/01/open-source-authorship-of-data-science-in-education-using-r/

Writing Data Science in Education Using R in the Open, https://education.rstudio.com/blog/2020/10/ds-in-edu/

D. Institutional, Disciplinary, and/or Professional Service

Statement of Service

My service has primarily been in my disciplines of science education, educational technology, and data science in education though I have also begun to take on greater service responsibilities in my department and college. This service activity is motivated by the desire to contribute to and enhance organizations and ideas that I care about. To that end, I engage in service for my discipline, especially with respect to contributing and leading peer-review activity, as well as service in my college, department, and local community.

In my discipline, I am serving on a three-year editorial review board term for the *Journal of Research in Science Teaching* and am on the editorial review boards for the *Journal of Research on Technology in Education* and *Contemporary Issues in Technology and Teacher Education*. I have also served as an ad-hoc reviewer for some of the leading educational research journals, including *Educational Researcher*, *AERA Open*, the *Journal of the Learning Sciences*. I am co-chair for the science education section of Division C of the American Educational Research Association (AERA), coordinating the review process for approximately 100 annual meeting proposals in 2019-2020 and 2020-2021. Finally, I have served as a panelist for the National Science Foundation and have reviewed for the *National Association of Research in Science Teaching* and the *Association of Science Teacher Education* conferences.

In the College of Education, Health, and Human Sciences at UTK, I was a member of the *Online Academic Programs Investment and Growth Plan* ad-hoc committee, is the co-facilitator of the working group on *Quality Research and Scholarship*, and is the co-organizer of the *Quantitative Methods Research Group*. This research group received the in-kind support of Associate Dean Hollie Raynor and carried out a needs assessment on the existing and desired capabilities of faculty, and led to my involvement in the working group on quality research and scholarship in the 2020 year.

At the department, as a beginning faculty member, thus far, I have been involved in admissions panels for the science education program. I have also been involved in an American Educational Research Association (AERA) Bootcamp workshop for TPTE graduate students interested in submitting a proposal to the AERA conference. As I gain experience, I plan to shift greater effort to department service and to engage in less review activity.

Finally, I carried out service in my community. I reviewed proposals for a science education-related initiative for Knox County Schools, and, after presenting multiple times for Knoxville's informal data science group, KnoxData, I agreed to as a co-organizer for it. I also worked with area teachers as a part of research projects that also aimed to directly or indirectly benefit the students with whom I worked, including co-leading in-service activities at a Knox County Schools in-service day and at an individual school in Knox County.

Institutional Service

College-level Service

Member, Online Academic Programs Investment and Growth Plan ad-hoc committee, 2019-2020

Facilitator, Quality Research and Scholarship working group, 2020

Organizer, Quantitative Methods Research Group, 2019-Present

Departmental Service

University of Tennessee, Knoxville

Mentor for AERA Bootcamp (2019)

Admissions boards for M.A. degree students (pursuing science teaching licensure) (2018-2020)

Program Service and Service on Student Committees

University of Tennessee, Knoxville

Advisor for Doctoral students: Jennifer Longnecker (Co-advisor with Amy Broemmel), Michael Mann (co-advisor with Kristin Rearden), Omiya Sultana (co-advisor with Lynn Hodge)

Committee member for Doctoral students: Shande King, Matthew Hensley

Disciplinary Service

Editorial Service

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

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 - Present

Service to the Profession

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

Panelist, National Science Foundation, 2020

Member, Technological Pedagogical Content Knowledge (TPACK) Special Interest Group (SIG) Award Committee, 2019

Conference Review Activity

Review Panel Member, American Educational Research Association (AERA) Annual Meeting, 2015-2019

Reviewer, National Association for Research in Science Teaching Annual Conference, 2019

Reviewer, Association for Science Teacher Education Annual Conference, 2019

Ad-hoc Journal Article Reviews

AERA Open (2019)
Computers & Education (2018, 2020)
Contemporary Educational Psychology (2018)
Educational Researcher (2020)
Education Sciences (2; 2019)

Educational Technology Research & Development (2020)
Journal of the Learning Sciences (2019)
Journal of Open Source Education (2019)
Journal of Open Source Software (2018; 2020)
Journal of Science Education and Technology (2019: 2; 2020)
Journal of STEM Education Research (2019)
TechTrends (2019)

Professional Service

Service to the Community

Co-Organizer, KnoxData, https://knoxdevs.com/groups/

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

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.

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

Consulting

2017-2020, Senior Investigating Consultant, *Profiles of science engagement: Broadening participation by understanding individual and contextual influences*, Jennifer Schmidt, Michigan State University

2017-2019, Statistical software development, Kenneth Frank, Michigan State University