Curriculum Vitae
Erin E. Peters-Burton

Work Address: George Mason University
4400 University Drive
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Education

Ph.D. 2008 **George Mason University**, Fairfax, Virginia
Dissertation: *The Effect of Nature of Science Metacognitive Prompts on Science Students' Content and Nature of Science Knowledge, Metacognition, and Self-Regulatory Efficacy*

M.Ed. 2004 **University of Virginia**, Charlottesville, Virginia
Social Foundations of Education, Educational Psychology

B.S. 1990 **University of Illinois**, Urbana-Champaign, Illinois
Teaching of Physics

Certifications and Licenses

Early Adolescent Science Certification, National Board for Professional Teaching Standards
Postgraduate Professional Teacher License, Physics, State of Virginia
Professional Teaching License, General Science, Physics, Chemistry, State of Illinois

University Experience

Donna R. and David E. Sterling Endowed Professor in Science Education 2017- present
College of Education and Human Development
George Mason University
Fairfax, Virginia

Founder and Director 2017 – present
Center for Social Equity through Science Education
George Mason University
Fairfax, Virginia

Division Director 2014- 2017
Educational Psychology, Research Methods, and Educational Policy
George Mason University
Fairfax, Virginia

Academic Program Coordinator 2014- 2017
Educational Psychology Program
George Mason University

Professor of Education 2017 - present
Associate Professor of Education 2013 - 2017
Assistant Professor of Education 2007- 2013
Science Education and Educational Psychology
George Mason University
Fairfax, Virginia

Adjunct Instructor 2006-2007
University of Virginia, Falls Church, Virginia
George Mason University, Fairfax, Virginia
James Madison University, Harrisonburg, Virginia

K-12 Teaching and Other Professional Experience

Peer Coach Summer 2007
Arlington County Public Schools, Arlington, Virginia

Albert Einstein Distinguished Educator Fellow 2006-2007
National Aeronautics and Space Administration
Exploration Systems Mission Directorate, Washington, District of Columbia

Science Lead Teacher and Girls' Engineering Teacher 1998-2006
Special Education Resource Team, Team Leader
Williamsburg Middle School, Arlington, Virginia

Curriculum Developer 2002-2006
Science Department, Arlington Public Schools, Arlington, Virginia

IB Physics, Science, and Mathematics Teacher 1990-1998
Arlington Public Schools, VA and Chicago Public Schools, IL

Peer Reviewed Research Journal Articles – published and in press
*** indicates student co-authors**

Porter, A. & **Peters-Burton, E.E.** (in press). Novice teacher development of self-regulated learning processes with explicit instruction. *Teaching Education.* https://doi.org/10.1080/10476210.2025.2587170

Peters-Burton, E.E., Miller, B.H., & Porter, A. (2025). Teachers as designers: Case study of early adopters integrating STEM systemically into their K-12 school. *Innovations in Science Teacher Education, 10*(3). Retrieved from https://innovations.theaste.org/teachers-as-designers-case-study-of-early-adopters-integrating-stem-systemically-into-their-k-12-school/

Peters-Burton, E.E., Tran, H.* & Miller, B.* (2024). Design-based research as professional development: Outcomes of teacher participation in the development of the science practices innovation notebook (SPIN). *Journal of Science Teacher Education, 35* (3), 221-242. http://dx.doi.org/10.1080/1046560X.2023.2242665

Parrish, J. C., Pleasants, J., Reid, J.W., Mulvey, B.K., **Peters-Burton, E.E.,** & Recker, A. (2024). Using card sort epistemic network analysis to explore preservice teachers' ideas about the nature of engineering. *Science & Education, 33,* 301-326. https://doi.org/10.1007/s11191-022-00395-3

Peters-Burton, E. E., Dagher, Z., & Erduran, S. (2023). Student, teacher, and scientist views of the scientific enterprise: A comparative epistemic network analysis using two nature of science frameworks. *International Journal of Science and Mathematics Education, 21,* 347–375. https://doi.org/10.1007/s10763-022-10254-w

Gray, C.*, Rothman, D.S., **Peters-Burton, E.,** Smith, C., & Parsons, E.C.M. (2023). Individual-based model use in Policy, *Journal of Integrative Environmental Sciences, 20(*1), 2271550. https://doi.org/10.1080/1943815X.2023.2271550

Peters-Burton, E., Rich, P. J., Kitsantas, A., Stehle, S. M.*, & Laclede, L.* (2023). High school biology teachers' integration of computational thinking into data practices to support student investigations. *Journal of Research in Science Teaching, 60*(6), 1353–1384. https://doi.org/10.1002/tea.21834

- Won the NSTA/NARST Research Worth Reading Award in 2024
- https://cehd.gmu.edu/news/stories/school-of-education-faculty-author-article-chosen-for-nsta/narst-%E2%80%9Cresearch-worth-reading%E2%80%9D-recognition

Peters-Burton, E. E., Peters, V., Swart, J.W.*, Stehle, S.M.*, & Laclede. L.* (2023). Case studies of two exemplar engineering-focused elementary schools: Programs, professional development, and growth mindset. *Research in Integrated STEM Education, 1,* 89-116.

Peters-Burton, E. E., Rich, P. J., Kitsantas, A., Laclede, L.*, & Stehle, S. M.* (2022). High school science teacher use of planning tools to integrate computational thinking. *Journal*

of Science Teacher Education, *33*(6), 598-620. https://doi.org/10.1080/1046560X.2021.1970088

Peters-Burton, E., Provinzano, K., Koskey, K.L.K., & May, T. (2022). Integrating beyond content: A framework for infusing elementary STEM-focused schools components into full-service community schools. *Education Sciences, 12* (511), 1-19. *https://doi.org/10.3390/educsci12080511*

Peters-Burton, E. E., Goffena, J.* & Stehle, S.M.* (2022). Utility of a self-regulated learning microanalysis for assessing teacher learning during professional development. *Journal of Experimental Education, 90*(3), 523-549. https://doi.org/10.1080/00220973.2020.1799314

Cleary, T., Kitsantas, A., **Peters-Burton, E. E.,** Lui, A., Mccleod, K.*, Slemp, J.*, & Zhang, X.* (2022). Self-regulated learning professional development: Shifts and variations in teacher outcomes and approaches to implementation. *Teaching and Teacher Education, 111,* 103619. *https://doi.org/10.1016/j.tate.2021.103619*

Gray, C.*, **Peters-Burton, E.E**., Smith, C., & Parsons, E.C., (2022). Basking shark tourism in Donegal, Ireland: A case study of public interest and support for shark conservation. *Aquatic Conservation: Marine and Freshwater Ecosystems.* https://doi.org/10.1002/aqc.3774

Porter, A.* & **Peters-Burton, E. E.** (2021). Investigating teacher development of self-regulated learning strategies for secondary science students. *Teaching and Teacher Education, 105, 103403. https://doi.org/10.1016/j.tate.2021.103403*

Mulvey, B., Parrish, J. C., Reid, J. W., Papa, J., & **Peters-Burton, E. E.** (2021). Making connections: Using individual epistemic network analysis to extend the value of nature of science assessment. *Science & Education, 30,* 527-555. DOI: https://doi.org/10.1007/s11191-020-00189-5

Peters-Burton, E. E., Behrend, T., Hudson, C.*, Matray, S.*, & Ford, M.* (2020). Development and validation of a STEM high school self-assessment inventory. *School Science and Mathematics, 120*(8), 477-490. https://doi.org/10.1111/ssm.12440

House, A., **Peters-Burton, E. E.,** Peters Hinton, V., Remold, J., & Levin-Guracar, E. (2020). Critical components of STEM-focused elementary schools. *Journal of Higher Education Theory and Practice, 20*(8). https://doi.org/10.33423/jhetp.v20i8.3227

Peters-Burton, E., House, A., Peters-Hinton, V., & Remold, J. (2019). Understanding STEM-focused elementary schools: Case study of Walter Bracken STEAM Academy. *School Science and Mathematics, 119,* 446-456.

Peters-Burton, E. E., Parrish, J. C., & Mulvey, B. K. (2019). Extending the utility of the Views of Nature of Science assessment through epistemic network analysis. *Science & Education, 28*(9), 1027-1053.

Stehle, S. M.*, & **Peters-Burton, E. E**. (2019). Developing student 21st century skills in selected exemplary inclusive STEM high schools. *International Journal of STEM Education*, *6*(39). doi:10.1186/s40594-019-0192-1

Merritt, E., Chiu, J. L., **Peters-Burton, E. E**., & Bell, R. (2018). Teachers' integration of scientific and engineering practices in primary classrooms. *Research in Science Education, 48,* 1321-1337. DOI: 10.1007/s11165-016-9604-0

Peters-Burton, E.E., House, A., Han, E.*, & Lynch, S. (2018). Curriculum and instruction at inclusive STEM high schools. *Journal of Research in STEM Education, 4*(2), 193-212.

Peters-Burton, E. E., & Johnson, T.* (2018). Cross-case analysis of engineering education experience in inclusive STEM-focused high schools in the United States. *International Journal of Science and Mathematics Education, 6*(4), 320-342.

Lynch, S. J., **Peters-Burton, E. E**., Behrend, T., House, A., Ford, M.*, Spillane, N.*, Matray, S.*, Han, E.*, & Means, B. (2018). Understanding inclusive STEM high schools as opportunity structures for underrepresented students: Critical components. *Journal of Research in Science Teaching, 55*(5), 712-748. DOI 10.1002/tea.21437
- Top 20 downloads for *JRST* from July 2016 to June 2018

Pellegrino, A., **Peters-Burton, E. E**., Gallagher, M.* (2018). Considering the nature and history of science in secondary science textbooks. *The High School Journal, 102*(1), 18-45.

Parsons, S. A., Malloy, J. A., Ward Parsons, A., **Peters Burton, E.,** & Cohen Burrowbridge, S. (2018). Sixth-grade students' engagement in academic tasks. *Journal of Educational Research, 111*(2), 232-245. https://doi.org/10.1080/00220671.2016.1246408

Sitar, A.*, May-Collado, L. J., Wright, A. J., **Peters-Burton, E.,** Rockwood, L., & Parsons, E.C.M. (2017). Tourists' Perspectives on Dolphin-Watching in Bocas del Toro, Panama. *Tourism in Marine Environments, 12*(2), 79-94.

Peters-Burton, E. E. & Botov, I. S.* (2017). Self-regulated learning microanalysis as a tool to inform professional development delivery in real-time. *Metacognition and Learning, 12*(1), 45-78. DOI: 10.1007/s11409-016-9160-z

Lynch, S. J., Spillane, N.*, House, A., **Peters-Burton, E. E**., Behrend, T., Ross, K. M., & Han, E.* (2017). A policy-relevant instrumental case study of an inclusive STEM-focused high school: Manor New Tech High. *International Journal of Education in Mathematics, Science and Technology, 5*(1), 1-20. DOI:10.18404/ijemst.75656

Peters-Burton, E. E., & Burton, S. R. (2016). Scientists to teachers: The role of student epistemology in lesson plans of career switchers. *School Science and Mathematics, 116,* 366-377.

Sitar, A.*, May-Collado, L. J., Wright, A. J., **Peters-Burton, E.,** Rockwood, L., & Parsons, E.C.M. (2016). Boat operators in Bocas del Toro, Panama display low levels of compliance with national whale-watching regulations. *Marine Policy, 68,* 221-228.

Peters-Burton, E. E. (2015). Scientists taking a nature of science course: Beliefs and learning outcomes of career switchers. *School Science and Mathematics, 116*(3), 148-163.

Peters-Burton, E. E., Merz, S. A.*, Ramirez, E. M.*, & Saroughi, M.* (2015). The effect of cognitive apprenticeship-based professional development on teacher self-efficacy of science teaching, motivation, knowledge calibration, and perceptions of inquiry teaching. *Journal of Science Teacher Education, 26*(6), 525-548.

Peters-Burton, E. E. (2015). Outcomes of a self-regulatory curriculum model: Network analysis of middle school students' views of nature of science. *Science & Education, 24,* 855-885. DOI: 10.1007/s11191-015-9769-3

Peters-Burton, E., Pellegrino, A., & Gallagher, M.* (2015). Humanizing the disciplines: Historical thinking and students' understanding of the nature of the science. *The Georgia Social Studies Journal, 5*(1), 54-67.

King-Sears, M. E., Johnson, T.*, Berkeley, S., Weiss, M., **Peters-Burton, E. E.**, Evmenova, A., Menditto, A.,* & Hursh, J. C.* (2015). An exploratory study of universal design for teaching chemistry to students with and without disabilities. *Learning Disability Quarterly, 38*(2), 84-96.

Peters-Burton, E. E., Kaminsky, S.*, Lynch, S. J., Behrend, T. Han, E.*, Ross, K., & House, A. (2014). Wayne School of Engineering: Case study of a rural inclusive STEM-focused high school. *School Science and Mathematics, 114*(6), 280 - 290.

Peters-Burton, E. E., Schweizer, V., Cobb, S. & Maibach, E. (2014). Weathercaster views on informal climate education: Similarities and differences according to climate change attitudes. *Journal of Geoscience Education, 62*, 431-444. DOI: 10.5408/13-046.1

Peters-Burton, E. E., Behrend, T., Lynch, S. J. & Means, B. (2014). Inclusive STEM high school design: 10 critical components. *Theory into Practice, 53,* 1-8. *https://doi.org/10.1080/00405841.2014.862125*

Peters-Burton, E. E. & Baynard, E.* (2013). Network analysis of domains of knowledge about the scientific enterprise: A comparison of scientists, middle school science teachers and 8th grade science students. *International Journal of Science Education, 35,* 2801-2837. DOI:10.1080/09500693.2012.662609

Peters-Burton E. E. (2013). The use of clinical interviews to develop in-service secondary science teachers' nature of science knowledge and assessment of student NOS knowledge. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 86*(6), 229 – 237.

Bell, R., Maeng, J. L,* & **Peters, E. E.** (2013). Teaching about scientific inquiry and the nature of science: Toward a more complete view of science. *The Journal of Mathematics and Science: Collaborative Explorations, 13*, 5-25.

Peters-Burton, E. E. & Hiller, S. R.* (2013). Fun science: The use of variable manipulation to avoid content instruction. *Journal of Science Teacher Education, 24,* 119-217. DOI: 10.1007/s10972-012-9269-0

Peters-Burton E. E. (2013). Student work products as a teaching tool for nature of science pedagogical knowledge: A professional development project with in-service secondary science teachers. *Teaching and Teacher Education, 29,* 156-166. *DOI*:10.1016/j.tate.2012.09.005

Martínez-Álvarez, P., Bannan, B., & **Peters-Burton, E. E.** (2012). Effect of strategy instruction on fourth grade dual language learners' ability to monitor their comprehension of scientific texts. *Bilingual Research Journal, 35*(3), 331-349.

Peters-Burton, E. E. (2012). Learning progressions in instructional design: Expectations and practice of scientists becoming teachers in the preservice and first-year settings. *Journal of the National Association for Alternative Certification, 7* (2), 1- 16.

Peters, E.E. (2012). Developing content knowledge in students through explicit teaching of the nature of science: Influences of goal setting and self-monitoring. *Science & Education*, *21*(6)*,* 881-898. doi 10.1007/s11191-009-9219-1

Peters-Burton, E. E. & Frazier, W. (2012). Voices from the front lines: Alignment of reform documents and master teacher instruction. *School Science and Mathematics, 112,* 179-190. DOI: 10.1111/j.1949-8594.2011.00131.x

Peters-Burton, E. E., Frazier, W., Annetta, L., Lamb, R.*, Cheng, R.*, & Chmiel, M.* (2011). Modeling augmented reality games with preservice elementary and secondary teachers. *Journal of Technology and Teacher Education, 19*(3), 303-329.

- Selected from almost 500 JTATE publications for recognition as an exemplary and useful reading. Hartshorne, R., Ferdig, R.E. & Bull, G. (Eds). (2021). *What editors wish authors knew*. Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/p/219093/

Peters, E. E. & Mattietti, G. K. (2011). Cognition and self-efficacy of stratigraphy and geologic time: Implications for improving undergraduate student performance in geological reasoning. *Journal of Geoscience Education, 59*, 163-174. doi:10.5408/1.3605042.

Martinez, M. & **Peters-Burton, E. E**. (2011). Cognitive affordances of the cyberinfrastructure for science and math learning. *Educational Media International, 48*(1), 17-26. doi:10.1080/09523987.2010.535333

Peters, E. E. & Kitsantas, A. (2010). The effect of nature of science metacognitive prompts on science students' content and nature of science knowledge, metacognition, and self-regulatory efficacy. *School Science and Mathematics, 110,* 382-396. doi:10.1111/j.1949-8594.2010.00050.x

Martinez, P., **Peters, E. E.,** Bannan, B., & Baek, J. (2010). Learning to observe in a geomorphological manner. *Science Activities, 48*, 13-22.

Peters-Burton, E. E. (2010). Learning about the human aspect of the scientific enterprise: Gender differences in conceptions of scientific knowledge. *Advancing Women in Leadership Journal, 30*(12). Retrieved from ***http://advancingwomen.com/awl/awl_wordpress/***

Bannan, B., **Peters, E. E**. & Martinez, P. (2010). Mobile, inquiry-based learning and geological observation: An exploratory study. *International Journal of Mobile and Blended Learning, 2*(3), 13-29. doi:10.4018/jmbl.2010070102

Peters, E. E. (2010). Shifting to a student-centered science classroom: An exploration of teacher and student changes in perceptions and practices. *Journal of Science Teacher Education, 21(*3), 329-349. doi:10.1007/s10972-009-9178-z

Peters, E. E. & Kitsantas, A. (2010). Self-regulation of student epistemic thinking in science: The role of metacognitive prompts. *Educational Psychology, 30*(1), 27-52. doi:10.1080/01443410903353294

Brazer, S. D. & **Peters, E. E.** (2007). Deciding to change: One district's quest to improve overall student performance. *International Journal of Education Policy and Leadership 2*(5), 1-14.

Peer-Reviewed Practitioner Journal Articles – published and in press

---

Peters-Burton, E.E. (in press). Integrating computational thinking into data practices instruction. *ISTE Learning Supercharged Spotlight.*

Peters-Burton, E.E., Cleary, T. J., & Rich, P.J. (2025). Making data practices explicit for students. *The Science Teacher, 92*(6), 81-85. https://doi.org/10.1080/00368555.2025.2558513

Peters-Burton, E.E. & Miller B.H.* (2025). Integration by design: Use of a task analysis tool to develop multidisciplinary lessons. *The Science Teacher, 92*(1), 46-51. https://doi.org/10.1080/00368555.2024.2432889

Peters-Burton, E. E., Rich, P., Cleary, T., Burton, S., Kitsantas, A., Egan, G.*, & Ellsworth, J.* (2020). Using computational thinking for data practices in high school science. *The Science Teacher, 87(*6), 30-36.

Lynch, S. J., **Peters-Burton, E. E**., & Ford, M.* (2014). Building STEM opportunities for all. *Educational Leadership, 72*(4), 54-60.

Annetta, L., **Burton, E. P**., Frazier, W., Cheng, R.*, & Chmiel, M.* (2012). Augmented Reality Games: Using Technology on a Budget. *Science Scope, 36*(3), 54-60.

Peters-Burton, E. E. (2012). Using metacognition to develop understanding of the role of evidence in science. *Science Scope, 35*(9), 14-19.

Peters-Burton, E. E. & Garling, A.* (2012). The nuts and bolts of enzymes. *The Science Teacher, 79*(5), 14-15.

Peters, E. E. & Sterling, D. R. (2008). The periodic table as a tool for teaching the nature of science. *The Science Education Review, 7*(1), 1-8.

Peters, E. E. (2008). Assessing scientific inquiry. *Science Scope, 31*(5), 27-33.

Peters, E. E. (2008). Validating assessment: Teacher study groups. *Science Scope, 31*(5), 48-50.

Peters, E. E. (2007). Frugal Equipment Substitutions: A quick guide. *Science Scope, 30*(6), 64-65.

Peters, E. E. (2006). Why is teaching the nature of science important? *Journal of Science Education in Virginia, 1(1), 55-58*.

Peters, E. E. & Johnson, T. (2006). Thriving in the Co-Taught Classroom. *Science Scope, 30*(4), 56-58.

Peters, E. E. (2006). Building student mental constructs in particle theory. *Science Scope, 30*(2), 53-55.

Peters, E. E. (2006). Connecting inquiry and the nature of science. *The Science Education Review, 5(*2), 37-44.

Peters, E. E. (2006). Write it, Do it. *Science Scope, 29(7), 11-13.*

Peters, E. E. (2005). Reforming cookbook labs into critical thinking labs. *Science Scope, 29(3),* 16-21.

Peters, E. E. (2004). Maximizing student time on task. *Science Scope, 28(1),* 38-39.

Book Chapters

Peters-Burton, E.E., Cleary, T., Kitsantas, A., & Tran, H. (2025). The future of instruction in science. In T. Behrend (Ed.) *Human-Technology Partnerships at Work,* (pp. 284-298). Cambridge University Press. ISBN: 9781009348201

Peters-Burton, E.E., Cleary, T., Rich, P., & Kitsantas, A. (2023). Science Practices Innovation Notebook (SPIN): Cultivating data practice skills through computational thinking and self-regulated learning. In S. Asim, J. Ellis, D. Sylkhuis, and J. Trumble (Eds.), *Theoretical and practical teaching strategies for K-12 science education in the digital age,* (pp. 116-130). IGI Global. DOI: 10.4018/978-1-6684-5585-2

Kaya-Capocci, S. & **Peters-Burton**, **E.** (2023). The use of digital formative assessment for integrated entrepreneurial STEM education. In S. Kaya-Capocci & **E. Peters-Burton**

(Eds.), *Enhancing entrepreneurial mindsets through STEM education,* (pp. 403-422). Springer. ISBN: 978-3-031-17816-0

Peters-Burton, E.E. & Knight, K.L.* (2022). Integrated STEM teacher education: An opportunity for prompting equity. In J.A. Luft and M.G. Jones (Eds.), *Handbook of research on science teacher education,* (pp. 465-476). Routledge Publishing. DOI: 10.4324/9781003098478-41

Johnson, C. C., Moore, T. J., **Peters-Burton, E. E.**, & Guzey, S. S. (2021). The need for a STEM road map. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map 2.0: A framework for integrated STEM education in the innovation age* (pp. 3-13). Routledge Publishing.

Johnson, C. C., Moore, T. J., Utley, J., Breiner, J, Burton, S., **Peters-Burton, E. E., &** Walton, J. (2021). The STEM road map for grades 6-8. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map 2.0: A framework for integrated STEM education in the innovation age* (pp. 102-132). Routledge Publishing.

Peters-Burton, E. E., Seshaiyer, P., Burton, S., Drake-Patrick, J., & Johnson, C. C. (2021). The STEM road map for grades 9-12. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map 2.0: A framework for integrated STEM education in the innovation age* (pp. 133-174). Routledge Publishing.

Sondergeld, T. A., Koskey, L.K., Stone, G. E., & **Peters-Burton, E. E.** (2021). Data driven STEM assessment. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map 2.0: A framework for integrated STEM education in the innovation age* (pp. 177-201). Routledge Publishing.

Mattietti, G. **& Peters-Burton, E. E.** (2021). Self-regulated learning theory to build scientific mindsets for diversity in STEM. In P. Short, H. Henson, & J. McConnell (Eds.) *Age of inference: Cultivating a scientific mindset.* Information Age Publishing.

Peters-Burton, E. E. & Burton, S. R. (2020). The use of metacognitive prompts to foster nature of science learning. In W. McComas (Ed.) *Nature of science in science instruction* (pp. 179-197). Springer. https://link.springer.com/chapter/10.1007%2F978-3-030-57239-6_9

Peters-Burton, E. E., House, A., Peters Hinton, V., Remold, J., & Goldsmith, L. (2020). STEM-focused school models. In C.A. Johnson, M. Mohr-Schroeder, & T. Moore (Eds.) *Handbook of STEM education research* (pp. 389-399). Routledge.

Peters-Burton, E. E., Cleary, T. J., & Kitsantas, A. (2018). Computational thinking in the context of science and engineering practices: A self-regulated learning approach. In D. Sampson, D. Ifenthaler, J.M. Spector & P. Isaias (Eds.) *Digital technologies: Sustainable innovations for improving teaching and learning* (pp. 223-240). Dorchet: Springer.

Cleary, T. J., **Peters-Burton, E**., Gergel, C., & Willet, K. (2018). Applications of cyclical self-regulated learning principles to life science. In M. DiBenedetto (Ed.) *Connecting self-*

regulated learning and performance with instruction across high school content areas. (pp. 127-162). Dorchet: Springer.

Peters-Burton, E. E. & Kysar-Mattietti, G. (2017). Building student self-awareness of learning to enhance diversity in the sciences. In D. D. Liston & R. Rahimi (Eds.) *Promoting social justice through the scholarship of teaching and learning* (pp. 270-296). Bloomington, IN: Indiana University Press.

- Mentioned in the *Chronicle of Higher Education* - https://www.chronicle.com/article/How-Do-You-Keep-Students-From/242337

Peters-Burton, E. E. (2017). Strategies for learning nature of science knowledge: A perspective from educational psychology. In M. R. Matthews (Ed.) H*istory, philosophy and science teaching: New perspectives* (pp. 167-193). Dorchet: Springer.

Peters-Burton, E. E. (2015). Self-regulated learning as a method to develop scientific thinking. In Management Association, IGI (Eds.), *STEM education: Concepts, methodologies, tools, and applications* (pp. 1189-1214). IGI Global.

Peters-Burton, E. E. (2015). The relationship of goal setting and teacher learning in professional development settings. In B. Higgins (Ed.) *Goal setting and personal development: teachers' perspectives, behavioral strategies and impact on performance* (pp. 15-33). Hauppauge, NY: Nova Publishers.

Moore, T. J., Johnson, C. C., **Peters-Burton, E. E.**, & Guzey, S. S. (2015). The need for a STEM road map. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map: A framework for integrated STEM Education* (pp. 3-12). New York: Routledge Publishing.

Johnson, C. C., Moore, T. J., Utley, J., Breiner, J, Burton, S., **Peters-Burton, E. E.,** Walton, J.& Parton, C. (2015). The STEM road map for grades 6-8. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map: A framework for integrated STEM Education* (pp. 96-123). New York: Routledge Publishing.

Peters-Burton, E. E., Seshaiyer, P., Burton, S., Drake-Patrick, J., & Johnson, C. C. (2015). The STEM road map for grades 9-12. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map: A framework for integrated STEM Education* (pp. 124-162). New York: Routledge Publishing.

Sondergeld, T. A., Koskey, K.L.K., Stone, G. E., & **Peters-Burton, E. E.** (2015). Data driven STEM assessment. In C. C. Johnson, **E. E. Peters-Burton**, and T. J. Moore (Eds.), *STEM road map: A framework for integrated STEM Education* (pp. 165-188). New York: Routledge Publishing.

Mattietti, G. K., & **Peters-Burton, E. E.** (2015). Student-centered visualization in general education introductory geoscience classes. In K. D. Finson and J. E. Pederson (Eds.), *Application of Visual Data in K-16 Science Classrooms* (pp. 333-355). Charlotte, NC: Information Age Publishing.

Peters-Burton, E. E., Cleary, T. J., & Forman, S. (2015). Professional development contexts that promote self-regulated learning in trainees. In T. J. Cleary (Ed.) *Self-regulated learning interventions with at-risk populations: Academic, mental health, and contextual considerations* (pp. 205-227). New York: APA Press.

Peters-Burton, E. E. & Martin-Hansen, L. (2015). Implications of gifted student selection techniques for scientific creativity. In M. K. Demetrikopoulos and J. Pecore (Eds.), *Interplay of Creativity and Giftedness in Science* (pp. 47-70). Rotterdam, the Netherlands: Sense Publishers.

Peters-Burton, E. E. (2013). Self-regulated learning as a method to develop scientific thinking. In I. M. Saleh and M. S. Khine (Eds.), *Approaches and Strategies in Next Generation Science Learning* (pp. 1-26). Hershey, PA: IGI Global.

Peters, E. E. (2011). Write it, do it. In J. Wheeler-Toppen (Ed.), *Science the "Write" Way.* (pp. 59-63). Washington, DC: NSTA Press.

Peters, E. E. (2010). Frugal equipment substitutions: A quick guide. In L. Froschauer (Ed.), *The Frugal Science Teacher 6-9: Strategies and Activities.* (pp. 41-43). Washington, DC: NSTA Press.

Peters, E. E. (2010). Write it, do it. In I. Liftig (Ed.), *Tried and true: Time tested activities for middle school.* (pp. 17-21). Washington, DC: NSTA Press.

Peters, E. E. (2008). Building student mental constructs in particle theory. In E. Brunsell (Ed.), *Readings in science methods, K-8* (pp. 373-377). Washington: NSTA Press.

Peters, E. E. (2008). Assessing inquiry. In E. Brunsell (Ed.), *Readings in science methods, K-8* (pp. 165-175). Washington: NSTA Press.

Books

Peters-Burton, E. (2023). *A practical approach to supporting science and engineering students with self-regulated learning.* Cambridge University Press. ISBN: 978-1-009-10001-4

Kaya-Capocci, S. & **Peters-Burton, E.** (Eds.). (2023). *Enhancing entrepreneurial mindsets through STEM education.* Springer. ISBN: 978-3-031-17816-0

Johnson, C. C., **Peters-Burton E. E.** & Moore, T. J. (Eds.). (2021). *STEM road map 2.0: A framework for integrated STEM education in the innovation age.* Routledge.
-Translated into Arabic by King Saud University (2022).

Peters-Burton, E. E. (2018). *STEAM + Curriculum: The Power of Light*. Shanghai, China: Xinhua WinShare Publishing and Media.

Johnson, C. C., **Peters-Burton E. E.** & Moore, T. J. (Eds.). (2015). *STEM road map: A framework for integrated STEM education.* New York: Routledge.

Review found at:
Schnittka, C. (2016, December 31). STEM Road Map [Review of the book *STEM road map: A framework for integrated STEM education,* edited by Carla C. Johnson, Erin E. Peters-Burton, and Tamara J. Moore]. *Journal of Educational Research,* DOI: 10.1080/00220671.2016.1253949

Peters, E. E. (2009). *Thinking like scientists: Using metacognitive prompts to develop nature of science knowledge.* Saarbrücken, Germany: Verlag Dr. Müller Aktiengesellschaft & Co. KG Publishers.

Curriculum Books

Johnson, C.C., Walton, J.B., & **Peters Burton, E.E**. (Editors). *STEM Road Map: Integrated STEM Teaching in Early Childhood Series.* Arlington VA: National Science Teaching Association (NSTA) Press.

- *Habitats in the United States* (published jointly with Routledge in 2024; 168 pages; ISBN 978-1-03257-925-2)
- *Our Changing Environment* (published jointly with Routledge in 2022; 176 pages; ISBN 978-1-03219-980-1)
- *Physics in Motion* (published in 2020; 123 pages; ISBN: 978-1-68140-459-2)
- *Investigating Environmental Changes* (published in 2018; 163 pages; ISBN:978-1-68140-534-6; translated into Chinese in 2020)
- *The Influence of Waves* (published in 2020; 184 pages; ISBN:978-1-68140-504-9)
- *Patterns and the Plant World* (published in 2018; 148 pages; ISBN:978-1-68140-507-0; translated into Chinese in 2020)
- *Natural Hazards* (published in 2019; 178 pages; ISBN:978-1-68140-486-8)

Johnson, C.C., Walton, J.B., & **Peters Burton, E.E**. (Editors). *STEM Road Map: Integrated STEM Teaching in Elementary School Series,* Arlington VA: National Science Teaching Association (NSTA) Press.

- *Hydropower Efficiency* (published jointly with Routledge 2024; 280 pages; ISBN: 978-1-03261-807-4)
- *Habitats Local and Far Away* (published jointly with Routledge 2024; 166 pages; ISBN: 978-1-03258-467-6)
- *Composting* (published in 2023 with Routledge; 200 pages; ISBN:978-1-00337-077-2)
- *Rainwater Analysis* (published in 2019; 244 pages; ISBN:978-1-68140-449-3; translated into Chinese in 2020)
- *Transportation of the Future* (published 2017; 187 pages; ISBN: 978-1-68140-399-1; translated into Chinese in 2020)
- *Swing Set Makeover* (published in 2018; 235 pages; ISBN:978-1-68140-462-2)
- *Harnessing Solar Energy* (published 2017; 208 pages; ISBN: 978-1-68140-402-8; translated into Chinese in 2020)
- *Wind Energy* (published 2017; 221 pages; ISBN: 978-1-68140-446-2; translated into Chinese in 2020)

Johnson, C.C., Walton, J.B., & **Peters Burton, E.E**. (Editors). *STEM Road Map: Integrated STEM Teaching in Middle School Series.* National Science Teaching Association (NSTA) Press.

- *Global Population Issues* (published jointly with Routledge in 2023; 170 pages; ISBN 978-1-03243-120-8)
- *Speed of Green* (published jointly with Routledge in 2023; 288 pages; ISBN 978-1-03242-338-8)
- *Genetically Modified Organisms* (published jointly with Routledge in 2022; 182 pages; ISBN 978-1-03219-982-5)
- *Human Impacts on Our Climate* (published in 2020; 156 pages; ISBN 978-1-68140-408-0)
- *Amusement Park of the Future* (published 2017; 114 pages; ISBN: 978-1-68140-483-7)
- *Packaging Design* (published 2018, 180 pages; ISBN: 978-1-68140-452-3)
- *The Changing Earth* (published 2020; 234 pages; ISBN 978-1-68140-468-4)
- *Improving Bridge Design* (published 2018; 234 pages; ISBN: 978-1-68140-414-1)

Johnson, C.C., Walton, J.B., & **Peters Burton, E.E.** (Editors). *STEM Road Map: Integrated STEM Teaching in High School Series,* Arlington VA: National Science Teaching Association (NSTA) Press.

- *Creating Global Bonds* (published jointly with Routledge, 2023; 130 pages; ISBN 978-1-03242-344-9)
- *Rebuilding the Natural Environment* (published jointly with Routledge 2022; 148 pages; ISBN 978-1-03219-977-1)
- *Formation of the Earth* (published jointly with Routledge 2022; 142 pages; ISBN 978-1-03219-991-7)
- *Mineral Resources* (published jointly with Routledge 2022; 140 pages; ISBN 978-1-03219-987-0)
- *Healthy Living* (published 2020; 140 pages; ISBN 978-1-68140-495-0)
- *Construction Materials* (published 2017; 115 pages; ISBN: 978-1-68140-471-4)
- *Radioactivity* (published 2019; 217 pages; ISBN:978-1-68140-474-5)
- *Car Crashes* (published in 2018; 138 pages; ISBN: 978-1-68140-546-9)

Editorials

Broadbent, J., De Barba, P., Hooshyar, D. & **Peters-Burton, E.** (2022). Editorial: Self-regulated learning in online settings. *Frontiers Journal: Educational Psychology.* https://doi.org/10.3389/fpsyg.2022.968586

Peters-Burton, E. E. (2020). The power of computational thinking in STEM education. *School Science and Mathematics, 120,* 127-128. https://doi: 10.1111/ssm.12397

Peters-Burton, E. E. (2018). Social equity and STEM education. *School Science and Mathematics, 118,* 73-74. https://doi.org/10.1111/ssm.12272

Peters-Burton, E. E. (2016). Application of learning theory to curriculum and instruction design. *School Science and Mathematics, 116,* 409-410.

Sondergeld, T. A., **Peters-Burton, E. E.,** Johnson, C. C. (2016). Integrating the three dimensions of Next Generation Science Standards: Issues and solutions for authentic assessment of student learning. *School Science and Mathematics, 116*(2), 67-70.

Peters-Burton, E. E. (2014). Is there a nature of STEM? *School Science and Mathematics*, *114,* 99-101.

Peters-Burton, E. E. (2012). The professional status of science and mathematics teachers. *School Science and Mathematics*, *112,* 201-203.

Refereed Conference Proceedings

Peters-Burton, E. E., Cleary, T. J., & Kitsantas, A. (2015, October). The development of computational thinking in the context of science and engineering practices: A self-regulated learning approach. *Proceedings of Cognition and Exploratory Learning in Digital Age Annual Conference* (pp. 257-261). Maynooth, Ireland: National University of Ireland Press.

Sheridan, K., Clark, K. & **Peters, E.** (2009, April). How scientific inquiry emerges from game design. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2009* (pp. 1555-1563). Chesapeake, VA: AACE.

Samsonovich, A. V., de Jong, K. A., Kitsantas, A., **Peters, E. E.,** Dabbagh, N., Kalbfleisch, M. L. (2008). Cognitive constructor: An intelligent tutoring system based on a biologically inspired cognitive architecture (BICA). In P. Wang, B. Goertzel, & S. Franklin (Eds.), *Frontiers in Artificial Intelligence and Applications* (pp. 311-325). IOS Books Online.

National-Level Technical Reports

Johnson, C.C., Sondergeld, T.A., & **Peters-Burton, E.E.** (2016). Army Educational Outreach Program eCybermission Program 2016 Annual Program Report, Army Educational Outreach Program, 1-129.

Johnson, C.C., Sondergeld, T.A., & **Peters-Burton, E.E.** (2015). Army Educational Outreach Program UNITE Program 2015 Annual Program Report, Army Educational Outreach Program, 1-172.

Johnson, C.C., Sondergeld, T.A., & **Peters-Burton, E.E.** (2015). Army Educational Outreach Program High School Apprenticeship Program 2015 Annual Program Report, Army Educational Outreach Program, 1-168.

Johnson, C.C., Sondergeld, T.A., & **Peters-Burton, E.E**. (2016). Army Educational Outreach

Program Undergraduate Research Apprentice Program 2015 Annual Program Evaluation Report, Army Educational Outreach Program, 1-165.

Johnson, C.C., Sondergeld, T.A., & **Peters-Burton, E.E.** (2015). Army Educational Outreach Program Research and Engineering Apprenticeship Program 2015 Annual Program Report, Army Educational Outreach Program, 1-175.

Other Scholarly Products
*** indicates student co-author**

AERA Science Teaching and Learning SIG Book Chat with Dr. Erin Peters-Burton, about her book, **A Practical Approach to Supporting Science and Engineering Students with Self-Regulated Learning** on October 30, 2024. A link to the video recording of this book chat may be found here: https://youtu.be/stQ_ZB-lHJk

NSTA Blog and NSTA Weekly (October 10, 2024). *Task Analysis Tool Helps Teachers Make Lessons More Student-Centered and Integrate Computational Thinking.* Article featuring the Research Worth Reading Awarded articles to the National Science Teaching Association membership. https://www.nsta.org/blog/computer-modeling-computational-thinking-and-community-driven-science-practices

STEM Road Map Curriculum Series mentioned in EdWeek September 3, 2024 https://www.edweek.org/teaching-learning/opinion-project-based-learning-helps-connect-lessons-to-students-lives/2024/09

Peters-Burton, E. E. & Kitsantas, A. (2023). Foreword. *New Directions in Teaching and Learning, 174,* 7-9. http://dx.doi.org/10.1002/tl.20552

AERA Studying and Self-Regulated Learning Special Interest Group Interview. (2023). Found at https://www.youtube.com/watch?v=LC1oyOfeI88

Peters-Burton, E.E., Cleary, T., Rich, P.J., & Kitsantas, A. (2023). *Science practices innovation notebook (SPIN).* Web-based data practices tool. https://spin.cehd.gmu.edu/

Kitsantas, A. & **Peters-Burton, E.E.** (2023). *Collaboration skills in the IB Middle Years.* Research report prepared for International Baccalaureate Organization. https://www.ibo.org/research/outcomes-research/myp-studies/collaboration-skills-in-the-international-baccalaureate-middle-years-programme-2022/

Peters-Burton, E. E. (2022). Processes and outcomes of an interdisciplinary team supporting teacher learning of motivational design principles. *AERA Studying and Self-Regulated Learning Times Magazine*, *5*(2), 13.

Kitsantas, A., Cleary, T., **Peters-Burton, E.,** & Rich, P. (August, 2021). Professional development in self-regulated learning: A focus on learning and application for secondary science teachers. *Studying and Self-regulated Learning Special Interest Group Times Magazine.* American Educational Research Association https://ssrlsite.files.wordpress.com/2021/08/ssrl-sig-summer-2021-newsletter.pdf

Advancing Excellence in P-12 Engineering Education & American Society for Engineering Education. (2020). *Framework for P-12 engineering learning: A defined and cohesive educational foundation for P-12 engineering.* Contributing Author. https://p12framework.asee.org/

Peters-Burton, E. E. (2020). *Why thinking like a scientist helps students tackle real-life problems.* Retrieved from https://futurumcareers.com/why-thinking-like-a-scientist-helps-students-tackle-real-life-problems

House, A., **Peters-Burton, E. E.**, Remold, J., & Peters, V. (2020). *Critical components of STEM-focused elementary schools.* Retrieved from www.inclusivestemschools.org

Peters-Burton, E. E., House, A., & Pack, P. (2019). *eSTEM Inventory.* [Measurement instrument]. Retrieved from https://inclusivestemschools.org/resources/

House, A., **Peters-Burton, E.,** Peters, V., & Remold, J. (2019). Developing a model of STEM-focused elementary schools [Video webinar]. Retrieved from www.inclusivestemschools.org

Peters-Burton, E., House, A., Peters, V., & Remold, J. (2019). *eSTEM school blueprint: Brentwood Magnet Elementary School of Engineering*. Menlo Park, CA: SRI Education.

House, A., Peters, V., **Peters-Burton, E.,** & Remold, J. (2019). *eSTEM school blueprint: Walter Bracken STEAM Academy.* Menlo Park, CA: SRI Education.

House, A., Remold, J. Hinton, V. P., & **Peters-Burton, E.** (2019). *eSTEM School blueprint: Summit Road STEM Elementary*. Menlo Park, CA: SRI Education

House, A., Remold, J. Hinton, V. P., & **Peters-Burton, E.** (2019). *Weaver Lake Elementary, a Science, Math, and Technology School*. Menlo Park, CA: SRI Education.

House, A., Remold, J. Hinton, V. P., & **Peters-Burton, E.** (2019). *Douglas L. Jamerson, Jr. Elementary School.* Menlo Park, CA: SRI Education.

Behrend, T. S., **Peters-Burton, E. E.,** Hudson, C., Matray, S., Ford, M., & Lynch, S. J. (2016). *STEM High School Inventory.* [Measurement instrument].

The Hechinger Report (2016). Can all students succeed at science and tech high schools? Retrieved from http://www.usnews.com/news/articles/2016-09-26/can-all-students-succeed-at-science-and-technology-high-schools. This report references the work done on the OSPrI project.

Smithsonian Science Education Center. (2015). That's so meta(cognitive)!. Video-based on-demand professional development series, *Good Thinking.* Retrieved from https://ssec.si.edu/stemvisions-blog/thats-so-meta-cognitive. The video references results of the Metacognitive Prompting Intervention – Science.

Peters Burton, E., Matray, S., Behrend, T.S. & Cox, M. J. (2015) A day in the life of Jasmine: A senior's experience with STEM education at Southside High School. (OSPrI Report 2015-05).

Insights into Inclusive STEM High Schools website (2015). Retrieved from http://inclusivesteminsights.sri.com/index.html.

Opportunity Structures for Preparation and Inspiration in STEM website (2014).

Clay, R. A. (2015). 20 key principles for teaching and learning. *Monitor on Psychology, 46*(8), 54-56. **Peters-Burton** is interviewed about how the principles are incorporated into the Masters of Science in Educational Psychology program at George Mason University.

Lynch, S. J. (2015). Science for all. *Scientific American, 212*(3), retrieved from http://www.scientificamerican.com/article/science-for-all/. This is an article about the OSPrI research project with PIs Lynch, **Peters-Burton**, Behrend, and Means.

Interview with Herold, B. (2014, April 7), Model 'Inclusive' STEM High Schools Share Common Traits, Researchers Say. *Education Week.* Retrieved from http://blogs.edweek.org/edweek/DigitalEducation/2014/04/model_inclusive_stem_high_scho.html

Peters Burton, E., Ford, M.R.*, Ross, K.M., Behrend, T.S., Spillane, N.K.*, & Han, E.M.* (2014) *Urban Science Academy: A Case Study of an Inclusive STEM-Focused High School in Boston, Massachusetts* (OSPrI Report 2014-02).

Behrend, T.S., Ford, M.R.*, Ross, K.M., Han, E.M.*, **Peters Burton, E**., & Spillane, N.K.* (2014). *Gary and Jerri-Ann Jacobs High Tech High: A Case Study of an Inclusive STEM-Focused High School in San Diego, California* (OSPrI Report 2014-03).

Peters Burton, E., Kaminsky, S.E.*, Lynch, S.J., Behrend, T.S., Ross, K.M., House, A., & Han, E.M.* (2013). *Wayne School of Engineering: A Case Study of an Inclusive STEM-Focused High School in Goldsboro,* North Carolina (OSPrI Report 2013-02).

Lynch, S.J., Spillane, N.K., **Peters Burton, E.,** Behrend, T.S., Ross, K.M., House, A., & Han, E.M. (2013). *Manor New Tech High School: A Case Study of an Inclusive STEM-Focused High School in Manor, Texas* (OSPrI Report 2013-01).

Maibach, E., Cobb, S. Leiserowitz A., **Peters, E.,** Schweizer, V., Mandryk, C., Witte, J., et al. (2011). *A National Survey of Television Meteorologists about Climate Change Education.* George Mason University. Fairfax, VA: Center for Climate Change Communication**.**

Peters-Burton, E. E. (2010). Conceptions of science, *Association of Women in the Sciences – New Zealand Newsletter, 1,* 9-10.

Peters-Burton, E. E. (2010). Secondary science program report for the National Science Teachers Association Standards, *National Council of Accreditation of Teacher Education,* Washington, DC.

Bell, R., Maeng, J. L., & **Peters, E. E.** (2010). *Scientific Inquiry and the Nature of Science Task Force Report*. Virginia Mathematics and Science Coalition.

Interviewed by the National Science Teachers Association appearing in: Partnering for Success: Science and Special Education. (December, 2009). *NSTA Reports!, 21* (4), p.12-13.

Peters, E. E. (2009). Encyclopedia Britannica Entry: Assessing Scientific Inquiry. Retrieved from http://www.britannica.com/bps/additionalcontent/18/28334976/ASSESSING-SCIENTIFIC-INQUIRY.

Manuscripts submitted for publication
*** indicates student co-author**

Miller, B. H.*, & **Peters-Burton, E. E.** (manuscript submitted). Exploring factors that shape elementary teachers' PCK for scientific argumentation: A case study in a naturalistic setting. *Journal of Science Teacher Education.*

Cleary, T. J., **Peters-Burton E.E.,** Tran, H.H., & McKeen, H*. (revise and resubmit). Examining teacher TPACK and social validity when implementing novel learning technology in high school science contexts. *Computers & Education.*

Gray, C.*, Rothman, D.S., **Peters-Burton, E.,** Smith, C., Parsons, E.C.M., & Garretson, A. (manuscript submitted). An individual-based model of basking sharks in Ireland. *Individual-Based Ecology.*

Gray, C.*, **Peters-Burton, E.,** Smith, C., Rothman, D. S., & Parsons, E.C.M. (manuscript submitted). Selecting models for use in marine policy: A case study in the North Atlantic. *Marine Policy.*

Peters-Burton, E. E., Rich, P. J., Cleary, T., Tran, H.*, & Miller, B.H.* (revise and resubmit). Teacher perspectives of student engagement in explicit and implicit data practice instruction. *School Science and Mathematics.*

Invited Research Presentations

Peters-Burton, E.E., Tran, H., & Miller, B. H. (2025, April). *Workshop*: *Using self-regulated learning to support science teachers and students.* Association for Science Teacher Education, online.

Peters-Burton, E. E. (2023, June). *From cognitive apprenticeships to self-regulated learning: Supporting student knowledge and practices for science teachers.* Virginia Science Education Leadership Association, Richmond, VA.

Peters-Burton, E.E. (2023, September). *Fostering student computational thinking with self-regulated learning: Science Practices Innovation Notebook.* mEducation Alliance, Arlington, VA.

Peters-Burton, E. E. (2023, June). *From cognitive apprenticeships to self-regulated learning: Supporting knowledge and practice for science teachers.* National Congress on Science Education, Arlington, VA.

Peters-Burton, E. E. (2021, November). *Understanding how groups think: Exploring the theoretical and empirical potential of epistemic network analysis.* Department of Education, Oxford University, England. https://youtu.be/76EBl5ZTL-Y

Frank, T., Glass, S., & **Peters-Burton, E. E.** (2020, April). *Building community among diverse graduate students' perseverance and success in graduate school: A first generate student perspective*. Online event hosted by George Mason Graduate Student Life.

Peters-Burton, E. E. (2018, December). *STEM schools: Critical components and models of successful STEM-focused schools*. National Science Teachers Association Virtual Conference: Embracing STEM. Retrieved from https://learningcenter.nsta.org/products/online_courses/vc_181201.aspx

Peters-Burton, E. E. (2018, October). *Strategies for being a productive writer.* Presentation for the Office of Student Success, College of Education and Human Development, George Mason University, Fairfax, VA.

Peters-Burton E. E. (2018, September). *From Einstein fellowship to academia.* Panel discussion at the Albert Einstein Distinguished Educator New Fellows Meeting, Alexandria, VA.

Peters-Burton, E. E. (2018, July). *Building a collaborative school/district STEM culture.* Panel discussion at The GE Foundation K-12 STEM Integration Conference, Cocoa Beach, FL.

Peters-Burton, E. E. (2018, March). *Supporting underrepresented students in STEM learning.* Talk given at the CEHD Professional Development Committee Faculty Chats, George Mason University, Fairfax, VA.

Peters-Burton E. E. (2017, February). *Building Career Ladders for Teacher Leaders.* Twitter chat for the Albert Einstein Distinguished Educator Fellows Network, Twitter.

Peters-Burton, E. E. (2018, February). *Building student self-awareness of learning to enhance diversity in the sciences.* Talk given at the Human Computer Interaction Lab, University of Maryland, College Park, MD.

Peters-Burton, E. E. (2017, November). *Supporting underrepresented students in STEM learning.* Talk given at the Women and Gender Studies Brown Seminar, George Mason University, Fairfax, VA.

Riggs, L., **Peters-Burton, E. E.,** Madkins, T.C., Abi-el-Mona, I. H. (2017, April). *Division A Fireside Chat. STEM education and school leadership: Equitably accessing the playing field*. Panel discussion at the American Educational Research Association, San Antonio, TX.

Peters-Burton, E. E. (2016, September). *Supporting student self-regulated learning strategies in STEM.* Social/Emotional Learning Panel of White House Office of Science and Technology Policy and NSF-sponsored Next Generation STEM High School Forum, Washington, DC. http://nsfstemforum.edc.org/speakers/

Lynch, S. J., Fusco, J., & **Peters-Burton, E. E.** (2016, September). *Critical components in inclusive STEM high schools.* Breakout Session: Critical Components, White House Office of Science and Technology Policy and NSF-sponsored Next Generation STEM High School Forum, Washington, DC. http://nsfnextgenhs16.org/

Peters-Burton, E. E. (2016, January). *STEM road map: How to use data and issues from car crashes to integrate STEM, English language arts, and social studies.* Indiana STEM Education Conference. Purdue University, West Lafayette, IN.

Johnson, C.C., Walton, J.B., & **Peters Burton, E.E.** (2016, April). *STEM road map: Integrated STEM teaching in high school series***.** Curriculum series presented at White House Office of Science and Technology Policy-sponsored forum, Advancing Active STEM Education for Our Youngest Learners, Washington, DC.

Peters-Burton, E. E. (2015, April). Factors in learning the nature of science: An educational psychology perspective. In M. Matthews (Chair), J.F. Osborne, N. G. Lederman, F. Abd-El-Khalick, M. P. Clough, K. Kampourakis, G. J. Kelly, S. A. Southerland, **E. E. Peters-Burton,** & W. Sherman-Heckler *The past, present and possible future of HPS-informed science education research.* Symposium conducted at the National Association of Research in Science Teaching, Chicago, IL.

Peters-Burton, E. E. & Behrend, T. (2014, May). *Summary and insights from multiple instrumental case studies of inclusive STEM-focused high schools: Opportunity structures for preparation and inspiration (OSPrI).* Paper presented at AGree: Attracting Young People to Careers in Food, Agriculture, Nutrition, and Natural Resource Management, Washington, DC.

Peters Burton, E.E., Merz, S.A.*, Ramirez, E.*, Saroughi, M.*, & Jackson, R*. (2014, April). *The effect of research experience-based professional development on teacher efficacy, motivation, knowledge calibration and perception of inquiry.* Paper presented at the annual conference of the American Education Research Association, Educational Service Research Projects Promotional Session, San Francisco, CA.

Peters-Burton, E. E. (2013, August) *Inclusive STEM high schools: Developing social capital*

to improve opportunities and Rigor. The International Baccalaureate (IB) Organization. Bethesda, MD.

Peters-Burton, E. E. (2013, July) *Inclusive STEM high schools: Centers of identity, agency, opportunity, and relevance for all students.* Taste of STEM, 100K in 10 Foundation, Washington, DC.

Peters-Burton, E. E. (2012, August) *Science for all: Engaging students' heads and hearts for active learning.* Keynote speech given to Prince William County Public Schools Secondary Science Faculty, Opening Session, Manassas, VA.

Akerson, V. L., Lederman, J. S., Walls, L., Buck, G. A. & **Peters-Burton, E. E.** (2012, March). *Sponsored Session: Teaching and assessment of inquiry and nature of science with early childhood students.* Paper presented at the National Association for Research in Science Teaching, Indianapolis, IN.

Peters-Burton, E. E. & Smith, T. (2012, February) *STEM-focused high schools in the United States.* Center for International Education, Fairfax, VA.

Peters-Burton, E. E. (2011, April) *Executive functions: Creating interventions to help students learn to help themselves.* Mountain View Alternative High School, Fairfax County Public Schools, VA.

Peters-Burton, E. E. (2011, February). *Communicating science to the public.* NOAA-ISET Day, Greensboro, NC.

Peters, E. E. (2010, April). *Every day is a learning opportunity.* Quander School, Alexandria, VA.

Peters, E. E. (2010, April). *Self-regulation of nature of science knowledge: Using learning theory to create explicit, reflective instruction of the scientific enterprise.* Winter Seminar Series, Grand Valley State University, Allendale, MI.

Peters, E. E. (2010, March). *Teaching scientific inquiry: Implications for educational leaders and administrators.* Panel discussion at the Virginia Professors of Educational Leaders meeting, Fairfax, VA.

Bannan, B., **Peters, E. E.,** Martinez, P., & Raime, A. (2010, January). *Design research in the classroom: The GO Inquire system.* XIII Congresso Nacional de Educadores, Lima, Peru.

Peters, E. E. (2009, November). *Self-regulation of nature of science knowledge: Issues to consider for effective implementation.* Presentation to the Virginia Science Education Leadership Association, Herndon, VA.

Peters, E. E. (2009, August). *The role of educational research in teacher education.* Presentation to Fulbright Scholars and Teachers, Washington, DC.

Martinez, M. E. & **Peters, E. E**. (2009, May). *Cognitive affordances of the cyberinfrastucture*

for science and math learning. Presentation at NSF-Funded Cyberinfrastructure Workshop, Fairfax, VA.

Peters, E. E. (2008, November). *Preservice teacher lesson planning processes: The use of self-regulation training models to promote explicit metacognition of the nature of science.* Presentation at NSF-Funded Metacognition in the Geosciences Cutting Edge Workshop, Northfield, MN. Video is accessible at http://serc.carleton.edu/NAGTWorkshops/metacognition/peters.html

Peters, E. E. (2008, July). *Self-regulation of scientific epistemologies: A metacognitive prompting intervention.* Presentation at NSF-Funded US-Sino Workshop on Mathematics and Science Education, Murfreesboro, TN.

International Presentations

Gray, C., Rothman, D., **Peters-Burton, E.**, Smith, C., & Parson, C. (2023, May 2-6). *An individual-based model of basking sharks in Ireland*. [Paper presentation]. The International Society for Ecological Modelling Global Conference. Scarborough, Canada.

Forde, E., Robinson, L., Ellis, J.A., & Dare, E.A. (2022, March 27-30). Yes, math is there, but...:Examining mathematical content in integrated STEM. In **E.E. Peters-Burton** (Discussant) *Integrated STEM instruction.* [Related paper set presentation]. National Association for Research in Science Teaching, Vancouver, BC, Canada.

Faruqi, F., Keratithamkul, K., & Roehrig, G. (2022, March 27-30). Manifestations of integration in practice: A case study of three elementary teachers' integration of engineering and science. In **E. E. Peters-Burton** (Discussant) *Integrated STEM instruction.* [Related paper set presentation]. National Association for Research in Science Teaching, Vancouver, BC, Canada.

Mart Hiwatig, B., Ellis, J.A., Faruqi, F., Keratithamkul, K., Forde, E., & Roehrig, G. (2022, March 27-30). Understanding the relationship between context and content integration. [Paper presentation]. In **E. E. Peters-Burton** (Discussant) *Integrated STEM instruction.* [Related paper set presentation]. National Association for Research in Science Teaching, Vancouver, BC, Canada.

Dare, E.A., Ellis, J.A., Roehrig, G. & Ring-Whalen, E.A. (2022, March 27-30). The current state of integrated STEM education: Comparing science content areas and grade-levels. In **E. E. Peters-Burton** (Discussant) *Integrated STEM instruction.* [Related paper set presentation]. National Association for Research in Science Teaching, Vancouver, BC, Canada.

Parrish, J.C., Pleasants, J., Reid, J., Mulvey, B.K., & **Peters-Burton E.E.** (2022, March 27-30). *Using card sort epistemic network analysis to explore preservice teachers' ideas about the nature of engineering.* [Paper presentation]. National Association for Research in Science Teaching, Vancouver, BC, Canada.

Peters-Burton, E. E., Burton, S. R., Laclede, L.*, Stehle, S.*, Rich, P., Cleary, T., & Kitsantas, A. (2020, January 4-7). *High school teacher task analysis of lesson plans to identify opportunities for computational thinking in data analysis.* [Paper presentation]. Hawaii International Conference on Education, Honolulu, HI, United States.

Peters-Burton, E. E., Goffena, J.*, Briscoe, M.*, & Poland, S.* (2017, August). *Self-regulated learning strategies of teachers in a scientific argumentation professional development experience.* Paper presented at the European Science Education Research Association, Dublin, Ireland.

Lynch, S., House, A., Ford, M.*, **Peters-Burton, E. E.,** Spillane, N.*, Behrend, T., Mantray, S.*, Means, B., & Corn, J. (2017, August). *Expanding opportunity structures through inclusive STEM high schools: A logic model.* Paper presented at the European Science Education Research Association, Dublin, Ireland.

Behrend, T. S. & **Peters-Burton, E. E. (**2017, August). *Development and validation of an inventory of critical components for STEM-focused high schools.* Paper presented at the European Science Education Research Association, Dublin, Ireland.

Peters-Burton, E. E., Bergeron, L. & Sondergeld, T. (2017, August). *Re-analysis of epistemic network with NOS family resemblance approach.* Paper presented at the European Science Education Research Association, Dublin, Ireland.

Peters-Burton, E. E., & Poland, S.* (2016, October). *Supporting student learning about the nature of science with self-regulated learning strategies.* Paper presented at the Limerick Symposium on Nature of Science in Science Education: Recent Debates and Future Directions, Limerick, Ireland.

Peters-Burton, E. E., Cleary, T. J., & Kitsantas, A. (2015, October). *The development of computational thinking in the context of science and engineering practices: A self-regulated learning approach.* Paper presented at the Cognition and Exploratory Learning in Digital Age Annual Conference, Maynooth, Ireland.

Peters-Burton, E. E. (2014, June). *Assessment models in the United States.* Presentation for the Chinese State Administration of Foreign Experts Affairs and the Second Yuying Foreign Languages School, Washington, DC.

Lynch, S.J., Behrend, T., **Peters-Burton, E.,** & Means, B.B. (2011, September). *Inclusive STEM high schools: Improving educational opportunity and the economy in the U.S.* Paper presented at the meeting of European Science Education Research Association, Lyon, Centre de Congrès, France.

Peters, E. E. (2010, January). *Using teachable moments to develop nature of science knowledge.* XIII Congresso Nacional de Educadores, Lima, Peru.

National Presentations

Dreyfus, B. W., **Peters-Burton, E.,** & Rosenberg J.L. (2025, August 4-7). Learning Assistants' pathways to becoming physics teachers. [Paper presentation]. American Association for Physics Teaching, Washington, DC, United States.

Peters-Burton, E., Miller, B.H.*, & Porter, A. (2025, January 15-18). Teachers as designers: Case study of early adopters integrating STEM systemically into their K-12 school. [Poster session]. Association for Science Teacher Education, Long Beach, CA, United States.

Peters-Burton, E., Cleary, T., Rich, P.J., Kitsantas, A., Miller, B.*, Hong, T.*, & McKeen, H.* (2024, March 17-20). *Science Practices Innovation Notebook: A framework for inclusion.* [Poster session]. National Association of Research in Science Teaching, Denver, CO, United States.

Miller, B.* & **Peters-Burton, E.,** Hassan, S. M.* (2024, March 17-20). *Exploring real-time engagement in data practices: Insights from learning analytics in secondary science investigations.* [Paper session]. National Association of Research in Science Teaching, Denver, CO, United States.

Peters-Burton, E., Miller, B.*, Cleary, T., Rich, P. & Hong, T.* (2024, January 10-13). *Teacher observations of student engagement in data practices: A comparative case study.* [Paper presentation]. Association for Science Teacher Education, New Orleans, LA, United States.

Peters-Burton, E. (2023, October 25-28). *Science Practices Innovation Notebook: NSTA Share-a-thon.* [Paper presentation]. National Science Teaching Association, Kansas City, MO, United States.

Minchow-Proffitt, Z. & **Peters-Burton, E.** (2023, October 25-28). *Chemistry lessons in the Science Practices Innovation Notebook.* [Paper presentation]. National Science Teaching Association, Kansas City, MO, United States.

Cabaniss, K. & **Peters-Burton, E.** (2023, October 25-28). *Earth science lessons in the Science Practices Innovation Notebook.* [Paper presentation]. National Science Teaching Association, Kansas City, MO, United States.

Barrett, E. & **Peters-Burton, E.** (2023, October 25-28). *Physics lessons in the Science Practices Innovation Notebook.* [Paper presentation]. National Science Teaching Association, Kansas City, MO, United States.

Wahidi, S.*, Kitsantas, A., **Peters-Burton, E.,** Hosek, B.*, & McKeen, H.* (2023, August 3-5). *Enhancing collaboration in middle school science classrooms: A self-regulatory perspective.* [Poster presentation]. American Psychological Association Annual Conference, Washington, DC, United States.

Rich, P. J., **Peters-Burton, E.,** Cleary, T., Kitsantas, A., Laclede, L.*, Yauney, J.A.*, & Reynolds, C.* (2023, April 18-23). *Assessing data practices in high school science courses.* [Paper presentation]. National Association of Research in Science Teaching Annual Conference, Chicago, IL, United States.

Cleary, T.J., **Peters-Burton, E.E.,** Rich, P., & Kitsantas, A. (2023, April 13-16). *Acceptability and feasibility of the Science Practices Innovation Notebook (SPIN) in science education context.* [Paper presentation]. American Educational Research Association Annual Conference, Chicago, IL, United States.

McKeen, H.*, Cleary, T. J., Kitsantas, A., **Peters-Burton, E. E**., Rich, P., & Tran, H.* (2023, March 13-17). *High school science teachers' and students' perceptions of usability, utility, and enjoyment of an electronic notebook during scientific investigations* [Poster Presentation]. Society for Information Technology and Teacher Education 2023, New Orleans, Louisiana, United States.

Ellis, J., Asim, S., Boda, P., Megowan-Roma, C., Olokunde, T., **Peters-Burton, E.,** Popejoy, K., & Schwortz, A. (2023, January 11-14). *Theoretical and practical teaching strategies for K-12 science education in the digital age.* [Paper presentation]. Association of Science Teacher Educators Annual Conference, Salt Lake City, UT, United States.

Peters-Burton, E., Tran, H.*, & Miller, B.* (2023, January 11-14). *Design-based research as professional development: Outcomes of teacher participation in the development of the Science Practices Innovation Notebook (SPIN).* [Paper presentation]. Association of Science Teacher Educators Annual Conference, Salt Lake City, UT, United States.

Ali, F.*, Balbuena, A.*, **Peters-Burton, E.,** Gross, M.A.*, Hutchison, A. Kaya, E. & Capecchi Perez, A.* (2022, May 23-24). *Supporting in-service teachers to take the computer science 5652 praxis examination*. [Poster presentation]. Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT), Philadelphia, PA, United States.

Lui, A.*, Zhang, X.*, Mcleod, K.*, Cleary, T., Kitsantas, A., & **Peters-Burton, E**. (2022, April 21-26). *Promoting regulatory processes in the classroom: A case study of nineteen secondary science teachers.* [Paper presentation]. American Educational Research Association, San Diego, CA, United States.

Peters-Burton, E.E. & Porter, A.* (2022, January 4-7). *Investigating teacher development of self-regulated learning strategies for secondary science students.* [Paper presentation]. Association for Science Teacher Educators Annual Conference, Greenville, SC, United States.

Kitsantas, A., Cleary, T. J., **Peters-Burton, E. E.,** Lui, A., McLeod, K., & Zhang, X., (2021, August 12-14). *A teacher efficacy scale for infusing SRL strategies into lesson plans with varied ability students* [Poster presentation]. American Psychological Association, Online.

Peters-Burton, E. E., Rich, P.J., Laclede, L.*, Stehle, S.*, Kitsantas, A. & Cleary, T. (2021, April 7-10). *High school science teachers' integration of computational thinking into data practices to support student investigations.* [Paper presentation]. National Association of Research on Science Teaching, Online

Kitsantas, A., Cleary, T. J., **Peters-Burton, E. E.,** McLeod, K.*, Zhang, X.*, & Slemp, J.* (2021, April 9-12)**.** *Investigating science teachers' professional growth in self-regulated learning through professional development: An extreme case analysis* **[**Poster presentation]. American Educational Research Association, Online.

Kitsantas, A., **Peters-Burton, E. E**., Cleary, T. J., Rich, P., Burton, S., McLeod, K.*, Zhang, X.,* Slemp, J.*, Laclede, L.*, & Stehle, S.* (2020, August 6-8)**.** *Infusing self-regulated learning in computational thinking through professional learning for science teacher***s [**Poster presentation]. American Psychological Association, Washington, DC, United States.

Zhang, X.*, Kitsantas, A., **Peters-Burton, E.,** Cleary, T., McLeod, K.*, & Slemp, J.* (2020, May 21-24). *The development and preliminary validation of a rubric to assess science teachers' self-regulated learning knowledge and application* [Poster presentation]. Association for Psychological Science, Chicago, IL, United States. (Conference canceled)

House, A., **Peters Burton, E. E**., Remold, J. & Peters, V. (2020, Apr 17 - 21) *Critical Components of STEM-Focused Elementary Schools* [Paper Session]. AERA Annual Meeting San Francisco, CA http://tinyurl.com/r9gqejv (Conference Canceled)

Peters-Burton, E. E., House, A., Peters, V., & Remold, J. (2020, March 15-18). *Critical components of inclusive STEM high schools and STEM-focused elementary school: Opportunities for vertical articulation.* [Paper presentation]. National Association for Research in Science Teaching, Portland, OR, United States. https://narst.org/sites/default/files/2020-03/NARST%202020%20Conference%20Program%20Book.pdf (Conference canceled)

Peters-Burton, E. E., Laclede, L.*, Stehle, S. M.*, Rich, P., Kitsantas, A., Cleary, T., & Mcleod, K.* (2020, March 15-18). *Teachers' intersection of computational thinking and data practices to support student data analysis during science investigations.* [Poster presentation]. National Association for Research in Science Teaching, Portland, OR, United States. https://narst.org/sites/default/files/2020-03/NARST%202020%20Conference%20Program%20Book.pdf (Conference canceled)

Mulvey, B., Parrish, J. & **Peters-Burton, E. E.,** (2020, March 15-18). *How to assess learners' connections across nature of science aspects: Using card sorts and epistemic network analysis.* [Workshop presentation]. National Association for Research in Science Teaching, Portland, OR, United States. https://narst.org/sites/default/files/2020-03/NARST%202020%20Conference%20Program%20Book.pdf (Conference canceled)

Peters-Burton, E. E., House, A., Peters, V.H., Remold, J., & Goldsmith, L. (2019, October). *STEM-focused school models: A synthesis of critical components of elementary and secondary schools.* National STEM Education Research Summit, Raleigh, NC.

Peters-Burton, E. E., Rich, P., Cleary, T., Kitsantas, A., & Winne, P. (2019, September). *Fostering computational thinking with self-regulated learning.* Paper presented at the STEM + C PI Summit, Alexandria, VA.

Peters-Burton, E.E., & O'Hare, D. (2019, April). *Developing a model of STEM-focused elementary schools.* Paper presented at the annual meeting of the Magnet Schools of America, Baltimore, MD.

Peters-Burton, E.E. & Burton, S.R. (2019, March). The use of metacognitive prompts to foster NOS learning during inquiry-based lessons. In W. McComas (Chair) *Enhancing nature of science (NOS) instruction through research-guided practices.* Symposium presented at the National Association of Research in Science Teaching, Baltimore, MD.

Peters-Burton, E. E., Parish, J., & Mulvey, B. (2019, April). *Extending the utility of views of nature of science assessment through epistemic network analysis.* Paper presented at the annual meeting of the National Association of Research on Science Teaching, Baltimore, MD.

Peters-Burton, E.E., House, A., Peters-Hinton, V., & Remold, J., (2019, April). *Models of exemplary stem-focused elementary schools: What are the critical components?* Paper presented at the annual meeting of the National Association of Research on Science Teaching, Baltimore, MD.

Bodzin, A., Hanuscin, D., Hermann, R. N., Johnson, C. C., **Peters-Burton, E. E**., Mensah, F., Pringle, R., Jones, G., & Schneider, R. (2019, January). *Be an early career STAR: Balancing service, teaching, and research.* Workshop at the annual meeting of the Association for Science Teacher Education, Savannah, GA.

Peters-Burton, E. E. (2018, July). *Teaching effective problem/project-based learning modules*. Workshop at the GE Foundation K-12 STEM Integration Conference, Cocoa Beach, FL.

Peters-Burton, E. E. (2018, July). *STEM schools: Critical components and models of successful STEM-focused schools*. Workshop at the GE Foundation K-12 STEM Integration Conference, Cocoa Beach, FL.

Cleary, T. J., Greene, J., **Peters-Burton, E. E.,** Anderson, J. L., Cergel, C., O'Malley, C. E., Willet, K., & Lobszowski, N. G. (2018, April). Self-regulated learning in the physical sciences and life sciences. In M DiBenedetto (Chair) *College readiness: Connections between high school lesson and self-regulated learning.* Symposium presented at the American Educational Research Association, New York, NY. Presentation can be found here: https://www.youtube.com/watch?v=QjnUMpUcVlI

House, A., Peters, V., **Peters-Burton, E. E.,** & Remold, J. (2018, April). *Comparing inclusive STEM high schools to STEM-focused elementary schools: Analysis of critical*

components. Paper presented at the American Educational Research Association Conference, New York, NY.

Peters-Burton, E. E. (2018, March). *The use of self-regulated learning to help students perform science and engineering processes.* Paper presented at the National Science Teachers Association Annual Conference, Atlanta, GA.

Johnson, C. C. & **Peters-Burton, E. E.** (2018, March). *NSTA press® session: STEM Road Map: Integrated STEM Teaching in Middle School—Amusement of the Future.* Paper presented at the National Science Teachers Association Annual Conference, Atlanta, GA.

Peters-Burton, E. E., House, A., Peters, V., & Remold, J. (2018, March). *A logic model of successful STEM-focused elementary schools: Analysis of critical components.* Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA.

Stehle, S.* & **Peters-Burton, E. E.** (2018, January). *21st century learning design in STEM lessons: Shifting to student responsibility for learning.* Paper presented at the Association for Science Teachers Educators Annual Conference, Baltimore, MD.

Goffena, J.*, & **Peters-Burton, E. E**. (2017, October). *Self-regulated learning in the sport psychology classroom: Exploring students' learning processes and outcomes.* Paper presented at the Association for Applied Sport Psychology annual meeting, Orlando, FL.

Peters-Burton, E. E. (2017, October). *The use of self-regulated learning strategies to foster learning in STEM.* Paper presented at the National STEM Education Research and Practice Summit, West Lafayette, IN.

Peters-Burton, E. E., Johnson, C. C., & Walton, J. B. (2017, October). *STEM road map: Integrated STEM curriculum for high school students.* Paper presented at the National STEM Education Research and Practice Summit, West Lafayette, IN.

Stehle, S.* & **Peters-Burton, E. E.** (2017, October). *21st century learning design in STEM lessons: Small changes make big differences.* Paper presented at the National STEM Education Research and Practice Summit, West Lafayette, IN.

Peters-Burton, E.E., Goffena, J.D.* & Briscoe, M.*, (2017, April). *Supporting self-regulated learning strategies to improve teacher outcomes in a scientific argumentation professional development experience.* Paper presented at the National Association of Research in Science Teaching annual meeting, San Antonio, TX.

Peters-Burton, E.E., House, A., Han, E.M.*, & Lynch, S.J. (2017, April). *Curriculum and instruction at exemplar inclusive STEM high schools.* Paper presented at the American Educational Research Association annual meeting, San Antonio, TX.

Peters-Burton, E.E., Briscoe, M.*, & Goffena, J.D.* (2017, April). *Utility of a self-regulated learning microanalysis for scientific argumentation in professional development*

experiences. Paper presented at the American Educational Research Association annual meeting, San Antonio, TX.

Peters-Burton, E. E., Johnson, C. C., & Walton, J. (2017, April) *STEM Road Map Curriculum Series for grades 6-8: Amusement of the future.* Paper presented at the National Science Teachers' Association annual meeting, Los Angeles, CA.

Peters-Burton, E. E & Johnson, C. C. (2017, March). *STEM Road Map Curriculum Series for grades 9–12: Construction materials.* Paper presented at the National Science Teachers' Association annual meeting, Los Angeles, CA.

Peters-Burton E. E., Poland, S.* & Goffena, J.* (2017, January). *Understanding learning processes and outcomes of teachers in a professional development course about the nature of science*. Paper presented at the Association for Science Teacher Educators annual meeting, Des Moines, IA.

Walton, J., Utley, J., Johnson, C. C., **Peters-Burton, E. E.,** & Sondergeld, T. (2016, October). *STEM Road Map: Integrated STEM curriculum for grades 6-8.* Paper presented at the School Science and Mathematics Association annual meeting, Phoenix, AZ.

Harkness, S., Johnson, C. C., Milner, A., & **Peters-Burton, E. E.** (2016, October). *Reviewing for the School Science and Mathematics journal.* Panel presentation at the School Science and Mathematics Association annual meeting, Phoenix, AZ.

Johnson, C. C., Harkness, S., Milner, A., & **Peters-Burton, E. E.** & Sondergeld, T. (2016, October). *Publishing in the School Science and Mathematics journal.* Panel presentation at the School Science and Mathematics Association annual meeting, Phoenix, AZ.

Peters-Burton, E. E., Walton, J., Johnson, C. C. & Sondergeld, T. (2016, October). *STEM Road Map: Integrated STEM curriculum for grades 9-12.* Paper presented at the School Science and Mathematics Association annual meeting, Phoenix, AZ.

Behrend, T.S., Kaminsky, S.E.*, Tomczak, D., & **Peters Burton, E.** (2016, August). How do innovative high schools support the acquisition of 21st century skills? A multiple instrumental case analysis. In T. Willford & T. Behrend (Chairs) *Why do 21st century skills matter to I-O psychologists?* Symposium presented at the annual meeting of the Society for Industrial and Organizational Psychology, Anaheim, CA.

Peters-Burton, E. E., & Johnson, T.* (2016, April). *Engineering instruction in inclusive STEM high schools: A cross-case analysis.* Paper presented at the Annual Meeting of the National Association of Research in Science Teaching, Baltimore, MD.

Peters-Burton, E. E. (2016, April). *Measuring in-service teacher readiness to engage in professional development: A self-regulated learning microanalysis.* Paper presented at the Annual Meeting of the National Association of Research in Science Teaching, Baltimore, MD.

Lynch, S. J., **Peters-Burton, E. E.,** Behrend, T., House, A. & Means, B. (2016, April). *A logic*

model for inclusive STEM high schools: How interrelationships among critical components explain students' success. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C.

Lynch, S. J., House, A., Moore, I.*, Ford, M. R.*, Matray, S.*, **Peters-Burton, E. E.,** Behrend, T., & Spillane, N*. (2016, April). *"Day in the Life" studies of students in comprehensive and STEM high schools: Opportunity structures.* Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C.

Peters-Burton, E. E. & Kysar-Mattietti, G. (2016, March) *Building student self-awareness of learning to enhance diversity in the sciences.* Paper presented at the Scholarship of Learning and Teaching Conference, Savannah, GA.

Bergeron, L., & **Peters-Burton, E. E.** (2016, January). *Course embedded undergraduate research on the nature of science: A strategy for deepening NOS understanding among pre-service elementary teachers*. Paper presented at the Annual Meeting of the Association for Science Teacher Educators, Reno NV.

Demetrikopoulos, M., Pecore, J., Gaines, T., Mesa, J., **Peters-Burton, E. E.** & Martin-Hansen, L. (2016, January). *Encouraging creativity while teaching diverse future gifted students: A panel discussion relevant to teaching pre-service and in-service teachers.* Paper presented at the Annual Meeting of the Association for Science Teacher Educators, Reno NV.

Peters-Burton, E. E. (2015, August). *Microanalysis of self-regulated learning to inform teacher professional development in real-time.* Paper presented at the Annual Meeting of the American Psychological Association, Toronto, Canada.

Peters-Burton, E. E. & Johnson, T*. (2015, June). *Cross-case analysis of engineering education experiences in inclusive STEM high schools in the U.S.* Paper presented at the Annual Meeting of the American Society for Engineering Education, Seattle, WA.

Pellegrino, A., **Peters-Burton, E. E.** (2015, April). *Considering the nature of science in secondary science textbook resources.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Kings-Sears, M. A., Johnson, T.*, Berkeley, S., & **Peters-Burton, E. E.** (2015, April). *Universal design in chemistry: Performance of students with and without disabilities.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Peters-Burton, E. E., Lynch S. J., Han, E.*, & House, A. (2015, April). *Exemplar inclusive STEM high school curriculum and instruction: Cross case analysis of eight schools.* Paper presented at the Annual Meeting of the National Association of Research in Science Teaching, Chicago, IL.

Lynch, S. J., **Peters-Burton, E. E.,** Behrend, T., Han, E. M.*, Ford, M.*, Spillane, N.*, Coyne, C.*, & House, A. (2015, April). *Critical components of inclusive STEM high schools:*

Instrumental variables revisited, rethought, and re-envisioned. Paper presented at the Annual Meeting of the National Association of Research in Science Teaching, Chicago, IL.

Peters-Burton, E. E., Johnson, C. C., & Koehler, K. M. (2015, March). *STEM road map: Using problem-based learning to integrate STEM in high school grades.* Paper presented at the Annual Meeting of the National Association of Science Teachers, Chicago, IL.

Spillane, N.* & **Peters-Burton, E. E.** (2015, March). *Exemplar inclusive STEM high schools: How do they work?* . Paper presented at the Annual Meeting of the National Association of Science Teachers, Chicago, IL.

Peters-Burton, E. E., Koehler, K. M., & Johnson, C. C., (2015, March). *STEM road map: Using problem-based learning to integrate STEM in elementary grades.* Paper presented at the Annual Meeting of the National Association of Science Teachers, Chicago, IL.

Peters-Burton, E. E. (2015, January). *Incorporation of scientific argumentation into instruction: Results from a professional development for high school teachers.* Paper presented at the Annual Meeting of the Association for Science Teacher Education, Portland, OR.

Pellegrino, A. & **Peters Burton, E.** (2014, November). *Challenging the traditional narrative of history and nature of science.* Paper presented at the National Council for the Social Studies Annual Conference, Boston, MA.

Peters-Burton, E. E. (2014, September). S*elf-regulation of argumentation skills in science: Results from a professional development for high school teachers.* Poster presented at the U.S. Department of Education Math and Science Partnerships Conference, Washington, DC.

Lynch, S. J., Kaminsky, S. E., Behrend, T. S., Spillane, N*. & **Peters-Burton, E. E**. (2014, May). Informal learning in inclusive STEM-focused high schools. In T. S. Behrend & D. Major, *I-O psychology's contributions to patching the STEM pipeline.* Symposium presented at the 29th Annual Meeting of the Society for Industrial and Organizational Psychology, Honolulu, HI.

Peters-Burton, E. E. & Sondergeld, T. (2014, April). *Validation of the Views of Science and Education Scale (VOSE) for English language speakers.* Paper presented at the annual meeting of the National Association for Research on Science Teaching, Pittsburgh, PA.

Martin-Hansen, L. & **Peters-Burton, E. E**. (2014, April). *Implications of gifted student selection techniques for supporting scientific creativity in young children.* Paper presented at the annual meeting of the National Association for Research on Science Teaching, Pittsburgh, PA.

Peters-Burton, E. E. (2014, April). *Critical components of inclusive STEM-focused high schools: A cross case analysis.* Symposium conducted at the annual meeting of the American Educational Research Association, Philadelphia, PA.

House, A. & **Peters-Burton, E. E.** (2014, April). STEM-focused curriculum in inclusive STEM high schools: A cross-case analysis. In **E. E. Peters-Burton** (Chair), *Critical components of inclusive STEM-focused high schools: A cross case analysis.* Symposium conducted at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Lynch, S. J., **Peters-Burton, E. E.,** Behrend, T., Spillane, N.*&, Ross, K., Han, E. M.*, Ford, M. R.*, & Kaminsky, S. (2014, April). Developing a Model for Inclusive STEM High Schools: A cross-case analysis of four schools. In S. J. Lynch (Chair), *Comparing studies of inclusive STEM high schools: Three approaches with different findings and policy implications.* Symposium conducted at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Merritt, E. G., Chiu, J. L., **Peters-Burton, E. E.** & Bell, R.L. (2014, April). *Young children doing science: The use of scientific practices in kindergarten and first grade classrooms.* Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Peters-Burton, E. E. (2014, January). *Informing professional development delivery in real-time: Self-regulated learning microanalysis as a tool.* Paper presented at the annual meeting of the Association for Science Teacher Education, San Antonio, TX.

McComas, W., Martin-Hansen, L., & **Peters-Burton, E. E**. (2014, January). *Teaching the nature of science: The rationale, structure, content and administration of a course designed to communicate key NOS ideas to pre and inservice science teachers.* Workshop at the annual meeting of the Association for Science Teacher Education, San Antonio, TX.

Peters Burton, E.E. (2013, April). *Microanalysis of self-regulatory processes of elementary teachers learning to teach earth science through inquiry.* Paper presented at the annual conference of the American Education Research Association, San Francisco, CA.

Peters Burton, E.E., Merz, S.A.*, Ramirez, E.*, Saroughi, M.*, & Jackson, R*. (2013, April). *The effect of research experience-based professional development on teacher efficacy, motivation, knowledge calibration and perception of inquiry.* Paper presented at the annual conference of the American Education Research Association, San Francisco, CA.

Peters-Burton, E. E., Lynch, S., Means, B., Spillane, N.*, & House, A. (2013, April) *Inclusive STEM-focused high schools: STEM education policy and opportunity structures.* Related paper set presented at the National Association for Research in Science Teaching Annual Conference, San Juan, Puerto Rico.

Peters-Burton, E. E. (2013, April) *Modeling relationships among aspects of the nature of science: Representing co-occurrences with epistemic network analysis.* Paper presented

at the National Association for Research in Science Teaching Annual Conference, San Juan, Puerto Rico.

Peters-Burton, E. E. (2013, January) *Scientists taking a NOS course: Learning outcomes and beliefs of career switchers.* Paper presented at the Association for Science Teacher Educators, Charleston, SC.

Mulvey, B., Chiu, J., & **Peters-Burton, E. E.** (2013, January) *Baby steps: Elementary teachers initial, concurrent NOS learning and teaching.* Paper presented at the Association for Science Teacher Educators, Charleston, SC.

Maibach, E., Witte, J., Cobb, S., **Peters-Burton, E.,** Robinson, J., Leiserowitz, A., Seitter, K., Harned, S., Todey, D., Bierly, E., Schweizer, V., Abshire, W, Herring, D., & Wei, M. Y. (2012, August). *The national weather and climate education program: A proposal to NSF.* Paper presented at the American Meteorological Society, Boston, MA.

Behrend, T. S., Lynch, S., Means, B., & **Peters-Burton, E. E.** (2012, July). *Critical components of an inclusive STEM-focused high school.* Paper presented to the International Society for the Psychology of Science and Technology, Pittsburgh, PA.

Lynch, S.J., **Peters-Burton, E.,** Behrend, T. & Means, B. (2012, June). *Multiple instrumental case studies of inclusive STEM-focused high schools: Opportunity structures for preparation and inspiration (OSPrI).* Poster presented at the NSF DR K-12 Principal Investigators Meeting, Crystal City, VA.

Lynch, S. J., Behrend, T., **Peters-Burton, E. E**., & Means, B. M. (2012, April). *Multiple instrumental case studies of inclusive STEM-focused high schools: Opportunity structures for preparation and inspiration.* Paper presented at the annual conference of the American Educational Research Association, Vancouver, Canada.

Peters-Burton, E. E. (2012, April). *Student work products as a teaching tool for nature of science pedagogical knowledge: A professional development project with in-service secondary science teachers.* Paper presented at the annual conference of the American Educational Research Association, Vancouver, Canada.

Roser-Renouf, C., **Peters-Burton, E. E.,** & Maibach, E.W. (2012, March). *Teaching about climate change and public health: Challenges and strategies for effective communication*. Paper presented at the annual conference of the National Science Teachers' Association, Indianapolis, IN.

Peters-Burton, E. E. (2012, March). *Assessing NOS knowledge using network analysis: An examination of students' growth in a contextualized environment*. Paper presented at the annual conference of the National Association for Research in Science Teaching, Indianapolis, IN.

Annetta, L.A., **Peters-Burton, E.,** Frazier, W., Cheng, R.*, Lamb, R.*, & Chmiel, M.* (2012, March). *Modeling augmented reality games with preservice science teachers.* JTATE

Special Issue. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education International Conference (SITE), Austin, TX.

Peters-Burton E. E. (2012, January). *The use of clinical interviews to develop in-service secondary science teachers' nature of science knowledge and assessment of student NOS knowledge.* Paper presented at the annual meeting of the Association of Science Teacher Education, Clearwater, FL.

Peters-Burton, E. E. & Hiller, S. E.* (2011, April). *Let's make science fun: The role of competence and avoidance motivation in activity based science.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Peters-Burton, E. E. & Burton, S. (2011, April). *Learning progressions in instructional design: Expectations and practice of scientists becoming teachers in the pre-service and first-year settings.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Peters-Burton , E. E. & Fraizer, W. (2011, April). *Voices from the front lines: Master science teachers on education reform.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Chmiel, M.* & **Peters-Burton, E.E**. (2011, April). *Just bare-bones facts: STEM career switchers' perceptions on the role of NOS in science education.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Kelly, A. E., Bannan, B., Martinez, M., **Peters, E. E.,** Pancake, C., Baek, J., Sloane, B., Lesh, D. (2010, May). *Cyberinfrastructure and cyber-enabled learning: What does it mean for education?* Paper presented at the American Educational Research Association, Denver, CO.

Eberbach, C., Hall, R., Rowe, S., Kisiel, J., Baek, J., & **Peters, E. E.** (2010, May). *Learning to observe scientifically in everyday, informal, and formal learning environments*. Paper presented at the American Educational Research Association, Denver, CO.

Peters, E. E. & Young, C. (2010, March) *Strengthening NBPTS inquiry entries using nature of science.* Paper presentation at the National Science Teachers Association Conference, Philadelphia, PA.

Bannan, B. & **Peters, E. E.** (2010, March) *Using mobile technologies in science with smart kids who learn differently.* Paper presentation at the Diamonds in the Rough: Smart Kids who Learn Differently, Shady Grove, MD.

Peters, E. E. & Burton, S.R. (2010, January). *Conveyance of the scientific enterprise to the classroom: Instructional design by scientists as pre-service teachers.* Paper presentation at the Association for Science Teacher Educators, Sacramento, CA.

Kysar-Mattietti, G. K., **Peters, E. E.,** & Verardo, S. (2009, December) *Geoscience education and cognition research at George Mason University.* Paper presentation at the American Geophysical Union, San Francisco, CA.

Bannan, B., **Peters. E.,** & Martinez, P. (2009, October). *GO Inquire: Exploring mobile learning and geological observational inquiry with elementary students*. mLearn: The 8th World Conference on Mobile and Contextual Learning, Orlando, FL.

Kysar, G. & **Peters, E. E.** (2009, October). *Self-efficacy as a learning tool in general education introduction geology courses.* Paper presentation at the Geological Society of America, Portland, OR.

Peters, E. E. (2009, April). *Connecting nature of science knowledge and content knowledge: An intervention study.* Paper presentation at the National Association for Research in Science Teaching Conference, Garden Grove, CA.

Peters, E. E. (2009, April). *Scientists to teachers: The role of epistemology in lesson plans of career switchers.* Paper presentation at the National Association for Research in Science Teaching Conference, Garden Grove, CA.

Peters, E. E. (2009, March). *Nature of science and metacognition.* Paper presentation at the National Science Teachers' Association Conference, New Orleans, LA.

Peters, E. E. (2009, March). *Learning theory: Research to practice in the science classroom.* Paper presentation at the National Science Teachers' Association Conference, New Orleans, LA.

Peters, E. E. (2009, March). *Student learning in your classroom: Developing a research project.* Paper presentation at the National Science Teachers' Association Conference, Teacher Research Day, New Orleans, LA.

McComas, W., Martin-Hansen, L., & **Peters, E. E**. (2009, January). *Teaching the nature of science: The rationale, structure, content and administration of a course designed to communicate key NOS ideas to pre and inservice science teachers.* Workshop at the Association for Science Teacher Education, Hartford, CT.

Peters, E. E. (2008, April). *Thinking like scientists: Using the nature of science as a metacognitive tool.* Presentation at the National Science Teachers' Association Conference, Boston, MA.

Peters, E. E., Bannan-Ritland, B., Baek, J. (2007, April) *The effect of embedded metacognitive prompts based on the nature of science (4-Phase EMPNOS) on metacognition*. Paper presentation at the National Association for Research in Science Teaching Conference, New Orleans, LA.

Baek, J., Xia, Q., **Peters, E. E**., Martinez, P., Bannan-Ritland, B., Hjalmarson, M. A. (2007, April) *Design research on the means of support for teaching and learning geological observation*. Paper presentation at the National Association for Research in Science

Teaching Conference, New Orleans, LA.

Grant Work – Funded

"Promoting Interest in Public School Teaching for Physics Students"
($15,000, PhysTEC, 11/30/24-11/29/26). Jessica Rosenberg (Mason, PI), Benjamin Dreyfus (Mason, Co-PI), & Erin Peters-Burton (Mason, Co-PI).
This pilot project examines the interest, identity, and motivation for physics students involved as a Learning Assistant at George Mason University as they take an introductory science teaching methods class with other students who want to become teachers.

"Computer Science Professional Development Experience – Sponsored by Google"
($250,000, Google, 4/1/2022 – 8/25/2023). Amy Hutchinson (Mason, PI), Erdogan Kaya (Mason, Co-PI), & Erin Peters-Burton (Mason, Co-PI).
This professional development and research experience consisted of 200 hours of industry-based learning over five weeks in an effort to accelerate learning, deepen teachers' content knowledge and broaden their application of computer science in the classroom. This was combined with the 3-credit, cohort-delivered, Special Topics: Problem Based Learning in Computer Science (PBL in CS), that leveraged the Makerspace Externship Experience and helped teachers apply this direct experience.

"The Amazon-Mason Professional Development Experience – Amazon Future Engineer"
($310,000, Amazon, 11/1/2020 – 8/25/2021). Amy Hutchinson (Mason, PI), Erdogan Kaya (Mason, Co-PI), & Erin Peters-Burton (Mason, Co-PI).
This professional development and research experience consisted of 200 hours of industry-based learning over five weeks in an effort to accelerate learning, deepen teachers' content knowledge and broaden their application of computer science in the classroom. This was combined with the 3-credit, cohort-delivered, Special Topics: Problem Based Learning in Computer Science (PBL in CS), that leveraged the Amazon Externship Experience and helped teachers apply this direct experience. After completion of the externship and PBL in CS course, teachers participated in a Professional Learning Community to facilitate mentorship and to create a network of collegial support. Teachers also participated in a robust evaluation that included assessment of teacher learning, student impact assessment, and direct observation of instruction.

"Examining Key Pedagogical Features in Building Middle School Students' Collaboration Skills in Science through Shared Self-Regulation" ($75,000, International Baccalaureate Organization, 04/01/20-06/30/22). Anastasia Kitsantas (Mason, PI) & Erin Peters-Burton (Mason, Co-PI)
This research project uses a two-phase approach incorporating a mixed methods approach to address a series of research questions related to factors influencing middle school student collaboration skills in science. Phase I focuses on the Middle Years Program (MYP) school science classrooms, identifying what design and practices promote the development of collaboration skills and Phase II compares differences in MYP and non-MYP schools collaboration skills after controlling for student characteristics.

"Integrated courses crosswalk: A case study, literature review, and deep dive into the implementation and impact of integrated courses in New Tech Network schools"

($59,869, New Tech Network, 07/15/19-05/31/22). Erin Peters-Burton (Mason, PI) & Nancy Holincheck (Mason, Co-PI).
This project is focused on interdisciplinary coursework, which provides rich learning experiences for students because the environment is authentic and students learn different disciplinary perspectives. This project focuses on the topic of integrated content and interdisciplinary teaching in three phases. Phase 1 will be a systematic review of the literature on integrated coursework and interdisciplinary teaching, Phase 2 will be a mapping of the framework from these findings with the New Tech Network schools model, and Phase 3 will be an instrumental case study of an exemplar school site.

"Fostering Student Computational Thinking with Self-Regulated Learning" ($3,459,255, Grant No. 1842090, National Science Foundation, STEM + C, 10/01/18-09/30/24). Erin Peters-Burton (Mason, PI), Timothy Cleary (Rutgers, Co-PI), Anastasia Kitsantas (Mason, Co-PI), Peter Rich (Brigham Young University, Co-PI).
This project is collaboratively building an electronic notebook (SPIN; Science Practices Innovation Notebook) for use in high school science to support self-regulated learning of computational thinking during data analysis. This project will advance research and development of new transdisciplinary approaches to computational STEM teaching and learning that will integrate the fields of CT and SRL into science activities in four content areas: Earth Science, Biology, Chemistry, and Physics. The project provides professional development for high school teachers that includes instruction on CT, SRL, and on using SPIN. Teachers collaboratively develop lessons that infuse CT & SRL, upload the lessons into SPIN, implement those lessons in their classrooms, and then collaboratively analyze student work samples captured by SPIN.

*"***Developing Student 21st Century Skills in Selected Exemplary Inclusive STEM High Schools"** ($1105, George Mason University Open Access Publishing Fund, 09/2019). Stephanie Stehle* and Erin Peters-Burton (George Mason University).
Award given to publish open access empirical journal article.

*"***Developing a Model of STEM-Focused Elementary Schools (eSTEM)"** ($654,740, Grant No. 1621005, National Science Foundation, Discovery Research K-12, 08/2016 – 08/2019). Ann House (SRI International, PI), Erin Peters-Burton (GMU, Co-PI), Vanessa Peters (SRI International, Co-PI).
The purpose of this grant is to translate what is currently known about inclusive STEM high schools into critical components that are likely in the elementary school setting, then verifying the critical components by performing replication case study design research on five exemplar elementary schools that are STEM-focused. The logic model produced from this work can aid in the development of future STEM-focused elementary schools.

"Making Connections Work: Designing and Studying Interactions Between Community STEM Experts and Families with Young Children" ($660,008, Institute of Museum and Library Services, 12/01/2016-11/30/2018) Kimberly Sheridan (GWU, PI), Erin Peters-Burton

(GMU, Faculty Associate).
The purpose of this grant is to facilitate open-ended inquiry with parents and children with a partnership with a STEM expert in a non-formal setting.

"Supplement - Multiple Instrumental Case Studies of Inclusive STEM-focused High Schools: Opportunity Structures for Preparation and Inspiration (OSPrI)" ($455,344, Grant No. 1118851, National Science Foundation, Discovery Research K-12, 06/2015 – 08/2017). Sharon Lynch (GWU, PI), Erin Peters-Burton (GMU, Co-PI), Tara Behrend (GWU, Co-PI), Barbara Means (SRI International, Co-PI)
The purpose of this supplement was to complete and validate a STEM Inventory instrument that could be used to determine the extent of each critical component found from the case studies done in OSPrI for schools who aspire to become STEM-focused.

"Self-Regulation of Argumentation Skills in Science" ($198,370, Virginia Department of Education 03/2014 – 09/2016). Erin Peters-Burton (PI), Giuseppina Kysar-Mattietti (co-PI), James Schweibach (co-PI), Jessica Rosenberg (co-PI), and Katherine Pettigrew (co-PI).
The purpose of this research was to provide a professional development opportunity designed to enhance 9-12 science teachers' understanding of and the ability to teach discourse and argumentation. Not only is argumentation a foundational underpinning of scientific knowledge, but it is also necessary in digesting claims made in everyday media. Recent work in science education, including the *Next Generation Science Standards,* has identified key issues of pedagogy when teaching how to make claims with evidence through reasoning. The PD in this proposal is unique because it applies this work on argumentation through principles of educational psychology, focusing on teachers and students' ability to self-regulate their learning. Science teachers of grades 9-12 in Frederick, Clarke, and Warren Counties will learn how to teach their students how to identify, critique, and challenge arguments as well as how to create scientific arguments from data generated from investigations that align with SOL content.

"Organizing Multidisciplinary Communities to Conduct Data-Intensive Research in Education and Learning" ($538,403, Grant No. 113816, National Science Foundation, Building Community and Capacity, 09/2013 – 08/2016). Erin Peters-Burton (PI), Sara Hart (FSU, co-PI), Colleen Ganley (FSU, co-PI).
The purpose of this project was to hold a two-day invited conference and produce subsequent papers on the use of big data, privacy issues, and the implications for Internal Review Board activities. This project also resulted in a special issue for fall 2016 in *Current Opinion in the Behavioral Sciences* and a 2016 American Educational Research Association panel titled "Forum session: Privacy and Ethics in Cyberspace."

"Multiple Instrumental Case Studies of Inclusive STEM-focused High Schools: Opportunity Structures for Preparation and Inspiration (OSPrI)" ($2,988,147, Grant No. 1118851, National Science Foundation, Discovery Research K-12, 09/2011-08/2016). Sharon Lynch (GWU, PI), Erin Peters-Burton (GMU, Co-PI), Tara Behrend (GWU, Co-PI), Barbara Means (SRI, Co-PI)
The purpose of this research was to study the design, implementation, and outcome dimensions, as well as the unique contextual elements for a new kind of school that is quietly emerging across the US, Inclusive STEM-focused High Schools (ISHSs). These schools differ from older, highly selective STEM-focused schools that target students identified as being STEM

gifted/talented. In contrast, the goal of ISHSs is to develop new sources of STEM talent among under-represented minority students, and provide them with opportunity structures to succeed in school and in STEM jobs, college majors, and careers.

"Making the Global Local - Unusual Weather Events as Climate Change Educational Opportunities" ($1,244,201, Grant # 1043235, National Science Foundation, Climate Change Education Partnership, 9/2010–8/2012)**.** Ed Maibach (GMU, PI), Anthony Leiserowitz (Yale, Co-PI), Sara Cobb (GMU, Co-PI). Erin Peters-Burton's Role: Co-Investigator. This project established a national network of broadcast meteorologists, climate scientists, university research programs, and climate and weather science organizations to engage, train, and empower local broadcast meteorologists to educate and inform the American public about climate change.

"Teaching Scientific Inquiry and the Nature of Science (K-5)" ($297,922, Grant No. 111503, Virginia Department of Education, Math/Science Partnerships, 03/2010-08/2012). Randy Bell (UVA, PI), Erin Peters-Burton (GMU, Co-PI), Jennifer Chiu (UVA, Co-PI).
The goal for this project is to address elementary school teachers' need for the knowledge and instructional skills to effectively address teaching of the nature of science through inquiry and as a result improve student academic achievement in science.

"The Emerging Prominence of the Nature of Science in Improving Science Education" ($5,000, George Mason University, Seed Grant, 05/2009 – 09/2009). Erin Peters (PI)
The purpose of this project is to produce manuscripts from previously collected data on nature of science knowledge to help teachers and administrators understand how to implement nature of science knowledge using research-based methods. The intention is to better connect teacher practice with educational research.

"The Effect of Research Experience-Based Professional Development on Teacher Efficacy, Motivation, Knowledge Calibration, and Perception of Inquiry Teaching" ($1782.00, American Educational Research Association, Educational Research Service Projects 02/2013 – 02/2014). Erin Peters-Burton (PI)

The purpose of this project is to measure the effect of a research experience-based professional development (PD) and to examine multiple measures across time of teacher efficacy, motivation, calibration of content knowledge, and perception of inquiry teaching. The goals of the multi-year PD are to provide teachers research experience with the support of a scientist, aid teachers in an independent research project in their content area, and require teachers to develop curriculum related to their research experience to secondary students. The study uses a longitudinal, parallel mixed methods approach with regard to efficacy, motivation, content knowledge calibration, perception of inquiry, and student achievement.

George Mason University Summer Research Funding
"Perceptional Assessment of the Scientific Enterprise (PACE) Analysis" ($1,600, George Mason University, Summer Research Funding, 05/2008 – 09/2008). Erin Peters (PI)

The purpose of this project is to acquire professional development on Rasch measurement, an analytic tool used to determine dimensions of strength and validity on assessments, and to analyze evidence gathered on an assessment designed to form understanding of how knowledge is created in science, the Perceptional Assessment of the Scientific Enterprise (PASE). Development of the PASE by a team of science education experts from around the

country and administration of the PASE to 600 eleventh graders will be conducted prior to this project.

Professional Development Programs with School Districts

Teaching Science Practices with Self-Regulated Learning 2024-2025
Albemarle County Public Schools, Charlottesville, VA
This one-year professional development program is designed to have teachers reflect on and incorporate supports for student self-regulated learning during science practices, such as designing investigations, using conceptual models and data practices, and argumentation in science.

Enhancing STEM-Focused Programs at a K-12 School 2024 - present
Wakefield School, The Plains, VA
The purpose of this multi-year researcher-practitioner partnership is to work with a small group of core teachers to design integrated STEM opportunities across the curriculum and to help increase external STEM partnerships with the school.

Teaching Argumentation Skills in Science 2015 – 2021; 2023 - 2025
Loudoun County Public Schools, VA
This one-year professional development opportunity is designed to enhance secondary science teachers' understanding of and the ability to teach discourse and argumentation. The first session of the PD focuses on teachers' own learning about argumentation and discourse in science. The second session of the PD focuses on how to support students in their evaluation of arguments and on their developments of arguments from data.

Goal Setting and Reflection
Loudoun County Public Schools Spring 2022
This face-to-face CLT-based professional development worked with small groups to provide educational research about student goal setting and reflection and practical solutions for the classroom. Teachers then worked in collaborative groups to incorporate more explicit goal setting into their classrooms.

Supporting Student STEM and 21st Century Skills
District of Columbia Public Schools Fall 2021
This online series consists of 14 classes designed to help K-12 STEM teachers implement Science and Engineering Practices in their secondary classrooms. The 14-week course is split into three parts: Social and Emotional Learning in Science, Designing Student-Centered Investigations, and Evaluating and Extending Science Learning.

Supporting Student Self-Regulated Learning in the STEM Classroom
District of Columbia Public Schools Summer 2021
This online series consists of seven classes designed to help K-12 STEM teachers implement student support of self-regulated learning. Classes addressed an overview of self-regulated learning, goal setting, motivation, self-efficacy, self-monitoring, self-evaluation, attributions and adaptivity. Teachers participated by trying the ideas presented each week and reporting on how well they worked in a peer review setting.

How to Challenge and Motivate Your Students to Take Ownership of their Own Learning
Arlington County Public Schools Fall 2020
This course gives teachers the foundations of Self-Regulation Learning; how to help students set learning goals, identify and use strategies to guide their learning, and how to reflect on their learning. Teachers identified places in their practice and planning to embed Self-Regulated Learning for their students to become independent, personalized learners. The course also shared tools to build Self-Regulation Learning in the virtual classroom, and how students can own their learning while at home.

Theory and Design of the 5E Curricular Model
Virginia Science Education Leadership Association Fall 2018 and Spring 2019
The purpose of this professional development was to teach the theory behind and the design components of the 5E curriculum model to Science Supervisors around the state of Virginia. The fall session consisted of an experiential introduction and the spring session consisted of an in-depth examination of the design components.

Contract Course – Self-Regulated Learning in a Scientific Research Setting
Loudoun County Public Schools, VA Fall 2017 and Spring 2018
This 6-credit course Incorporates experience of developing a literature review as rational for posing a scientific question and understanding of self-regulated learning in undertaking research in science, particularly in forming a problem statement based on prior research. Builds fundamental knowledge of:

1) How to develop a literature review and connect the literature review with a sophisticated research question
2) The ways self-regulated learning strategies are used in synthesizing prior research into a rationale for new scientific investigations
3) How self-regulated learning and cognitive apprenticeships are related

Scientific Inquiry in the Physical Sciences Fall 2016
Prince William Public Schools, VA
The purpose of this course is to give secondary physical science teachers experiences in learning curriculum and instruction in their content area taught in an inquiry format. Once mastered, the secondary teachers will then design their own inquiry-based physical science lessons.

Developing Assessments for Next Generation Science Standards (NGSS) 2014-2015
Office of the State Superintendent of Education, Washington, DC
In December 2013, the District of Columbia Public Schools adopted the Next Generation Science Standards (NGSS), which were vastly different from the prior content standards. The purpose of this professional development relationship is to work with teachers from both DCPS and the Charter Schools in Washington, DC to develop curriculum and assessments aligned to the NGSS.

Assessment to Inform Instruction Professional Development 2013 – 2014
Frederick County Public Schools, VA
The purposes of this professional development were to facilitate middle school and high school lead science teachers in their development of a strategic assessment plan in order to gain meaningful feedback from student performance as well as instruction on constructing well

balanced assessments aligned with learning objectives that performed with validity and reliability.

Contract Course – K-5: Earth Science and Scientific Inquiry Spring 2012
Prince William County Public Schools, VA
The purpose of this course is to give K-5 teachers experiences in learning earth science content as taught in an inquiry format. Once mastered, the K-5 teachers will then design their own inquiry-based earth science lessons. Incorporates understanding about scientific inquiry in the context of earth science in K-5 classrooms. Builds fundamental knowledge of:

1) Interrelationships in Earth/space systems,
2) Earth patterns, cycles and change,
3) Earth resources.

Executive Function Professional Development 2011 – 2013
Mountain View Alternative High School
Fairfax County Public Schools, VA
Conducted professional development on interventions to address unskilled executive functions of high school students. Due to the specific needs of the students at this school and the unorthodox methods of instruction, development of the event required weeks of shadowing students and teachers at the school and discussions with focus groups of teachers. A relationship with the school was established and continues to flourish with feedback and refinement of the interventions. Year 1 (2011) was devoted to developing a common language and understanding among the faculty and Year 2 (2011-2012) was devoted to developing a common awareness of executive function among the student population. Interventions with specific students were constructed, implemented, and refined throughout 2011-2012.

Contract Course – Scientific Inquiry and the Nature of Science Spring 2011
Stafford County Public Schools, VA
Offered 3 credit course to 20 elementary, middle and high school teachers that taught them about aspects of Scientific Inquiry and the Nature of Science and then supported teachers in the incorporation of the material into their current curriculum. Included active assessment of the nature of science instruction with student work products.

Co-taught Nature of Science/Ecology class in Rodney Thompson MS 2010-2011
Stafford County Public Schools, VA
Designed and implemented a course on the nature of science and ecological principles with two middle school teachers, Belinda Casto-Landolt and Craig Vann, who were former students in the Scientific Inquiry and Nature of Science course in 2010. Course included explicitly teaching students how to think scientifically and apply this thinking to a citizen science project on horseshoe crab population studies at Henlopen, DE.

Contract Course – Scientific Inquiry and the Nature of Science Spring 2010
Stafford County Public Schools, VA
Offered 3 credit course to 20 elementary, middle and high school teachers that taught them about aspects of Scientific Inquiry and the Nature of Science and then supported teachers in the incorporation of the material into their current curriculum. Included active assessment of the nature of science instruction with student work products.

Evaluation Projects

Army Education Outreach Program (AEOP), United States Army
Lead Organization: United States Armed Forces and Battelle 2015-2018
Research and Engineering Apprenticeship Program (REAP)
Undergraduate Research Apprenticeship Program (URAP)
Science & Engineering Apprenticeship Program (SEAP)
eCybermission (eCM)

Cultivating Cultures for Ethical STEM Program Grant, National Science Foundation
Lead Organization: Purdue University 2015 - 2020
Foundations of Social and Ethical Responsibility among Undergraduate Engineering Students: Comparing across Time, Institutions, and Interventions

Mathematics-Science Partnership Grant, Virginia Department of Education
Lead Organization: University of Virginia 2013-2014
Blue Ridge Collaborative for Earth Science

Mathematics-Science Partnership Grant, Virginia Department of Education
Lead Organization: University of Virginia 2012-2013
The Nature of Science and Scientific Inquiry

Office of Education, NASA Headquarters
Lead Organization: NASA 2006-2007
Lunar Librarians

University Courses Taught

*Indicates Course Authorship

Doctoral Level Courses
George Mason University
EDRS 824: Mixed Methods Research
EDEP 820: Teaching, Learning, and Cognition
EDEP 822: Advanced Learning, Motivation, and Self-Regulation
*EDCI 810: Foundations of Science Education Research
*EDCI 811: Contemporary Issues of Science Education Research
EDCI 813: Focused Science Education Research
EDRS 811: Quantitative Methods in Educational Research
EDRS 810: Problems and Methods of Educational Research
*EDUC 860: STEM Education Research and Policy
EDUC 890: Doctoral Internship

Master's Level Courses

George Mason University
*EDUC 545: Teaching Science and Engineering Practices (online)
EDEP 550: Theories of Learning and Cognition
*EDEP 591: Data-Driven Decision Making for Educational Continuous Improvement (online)
EDEP 799: Thesis in Educational Psychology
EDEP 798: Directed Reading, Research, and Individual Projects in Educational Psychology
EDCI 553: Science Methods for the Elementary Classroom
*EDUC 500: K-5 Scientific Inquiry: Earth Science
*EDUC 547: Scientific Inquiry and the Nature of Science (online)
*EDCI 673: Advanced Methods of Teaching Science in the Secondary School
*EDCI 683: Curriculum Development and Evaluation in Science Education
*EDCI 663: Research in Science Education
EDRS 590: Education Research
*SEED 573 (previously EDCI 573): Teaching Science in the Secondary School
EDCI 790: Secondary Education Internship
*SEED 507 (previously EDUC 674) Assessment in the Secondary School
SEED 549 (previously EDUC 672): Human Development and Learning: Secondary Education

James Madison University
*Inquiry in the Physical Sciences

University of Virginia
*Developing Science Inquiry Teacher Tools

Undergraduate Level Courses
George Mason University
*SEED 483 (formerly EDCI 483): Advanced Methods of Teaching Science in Secondary Schools
*BIS 489: Introduction to Educational Psychology in K-12 Schools
PSYC 460: Independent Study in Psychology
*SEED 473 (formerly EDCI 473): Teaching Science Methods in Secondary Schools
EDUC 372: Human Development and Learning: Secondary Education
*NCLC 395: Science in Action

Guest Lecturer
Critical Issues in Integrated STEM, Doctoral Level, North Carolina State University, Fall 2023
Integrated STEM, Doctoral Level, University of Minnesota, Spring 2022
Writing Grants (EDSE 885), George Mason University, Fall 2022, Fall 2024
Teacher Preparation and Professional Development (EDUC 803), George Mason University, Spring 2023

Scholarly Awards

National Science Teaching Association/ National Association for Research in Science Teaching Research Worth Reading Award, *High School Biology Teachers' Integration of Computational Thinking into Data Practices to Support Student Investigations,* 2024. Open access article is found at https://onlinelibrary.wiley.com/doi/full/10.1002/tea.21834

External Examiner, Mr. Kason Ching Cheung, Oxford University, England, 2024.

Virginia Science and Mathematics Coalition Programs that Work, *Designing SPIN as a Professional Development Experience*, 2023.

Astor Visiting Lectureship Awardee, Oxford University, England, 2021.

Fulbright Associate, University College Dublin, Dr. Tara Cusack, 2021.

George Mason University Thank-A-Teacher Program, recipient, 2015, 2016, 2017, 2018, 2019.

George Mason Online Teaching Excellence Award, nominated, 2020.

George Mason Teaching Excellence Award, nominated, 2019, 2020.

Career Connection Faculty Award Nominee, George Mason University Career Services Center, 2016, 2019.

Outstanding Science Teacher Educator of the Year, Association of Science Teacher Educators, 2016.

Emerging Researcher Award Finalist, George Mason University, 2013, 2011.

College of Education and Human Development Scholarly Achievement Award, George Mason University, 2012.

Teacher of Distinction Award, George Mason University, 2012.

Teaching Excellence Finalist, George Mason University, 2010, 2011.

University Science Educator of the Year, Virginia Association of Science Teachers, 2010.

Faculty Affiliate, Center for History and New Media, George Mason University, 2010.

SPORE: *Science* Prize for Online Resources in Education, On the Cutting Edge: Teaching Help for Geoscience Faculty. 2010. Authored webpages can be found at
http://serc.carleton.edu/NAGTWorkshops/metacognition/peters.html
http://serc.carleton.edu/NAGTWorkshops/metacognition/activities/28642.html
http://serc.carleton.edu/NAGTWorkshops/metacognition/activities/28640.html

Outstanding Doctoral Research Award, Honorable Mention, National Association for Research in Science Teaching, 2009.

Faculty Affiliate. Women and Gender Studies. George Mason University, 2009.

New Faculty Mentor Program, American Educational Research Association, Division C Learning and Instruction, 2008 (Mentor: **Dr. Barry Zimmerman**).

Doctoral Intern, National Science Foundation, Elementary, Secondary, and Informal Education Centers for Learning and Teaching, Arlington, Virginia, 2006.

Presidential Award for Excellence in Mathematics and Science Teaching, 2004, Virginia State Finalist.

George Mason University Service

Evaluation Committees

- Member, George Mason University S-STEM NSF Internal Assessment Team for Limited Submissions (2026)
- Member, George Mason University Rhoades and Marshall Student Scholarship Selection Committee (2025-2026)
- Co-Chair, CEHD Promotion and Tenure Committee (2025-2026)
- Member, Promotion to Full Tier 1 Committee, CEHD, Research Methods (2024)
- Member, Promotion and Tenure Tier 1 Committee, CEHD, Education Leadership (2023)
- Chair, Promotion Committee, CEHD, Tier 1 Promotion to Full Professor (2022)
- Co-Chair, Promotion and Tenure Committee, CEHD, Dean of CEHD (2022)
- Member, COVID-19 Faculty Evaluation Ad Hoc Committee, CEHD (2020)
- Ad Hoc Member Promotion and Tenure Committee, CEHD, Promotion to Full Professor (2017, 2019, 2020, 2021)
- Chair, Promotion and Tenure Committee, CEHD, Tier 1 Promotion to Full (2019)
- Chair, Tenure-Track Annual Review Committee, CEHD (2019-2020)
- Co-Chair, Tenure-Track Annual Review Committee, CEHD (2018-2019)
- Co-chair, Graduate School of Education Faculty Evaluation Committee (2016 – 2018)
- Member, Promotion and Tenure Committee, CEHD, Tier 1 (2017, 2020)

Governance Committees

- Member, Research and Innovation Forum, CEHD (2024-2026)
- Chair, CEHD Faculty Bylaws Committee (2023- 2025)
- Member, CEHD Student Appeals/Faculty Grievance Committee (2020-2022)
- Member, AERO Survey Advisory Committee (2017-2022)
- Member, CEHD Faculty Council (2009-2012, 2018-2020, 2023-2025)
- Member, CEHD PhD Committee, Science Education Research representative (2014-2017, 2021-2022, 2023-2025)
    - PhD Curriculum Committee Chair (2024-2025)
- Member, Student Affairs Committee, CEHD (2012-2015)
- Chair, Professional Development Committee, College of Education and Human Development (2007-2009)

Hiring Committees

- Member, Secondary Education Term Faculty (2024)
- Member, Search Committee for STEM Accelerator Director (2022)
- Chair, Search Committee for Tenure-Track faculty, Educational Psychology (2020)
- Chair, Tenure-Track faculty search, Advanced Studies on Teaching and Learning (2019)
- Member, Search Committee for Finance Officer for Post-Grant Awards (2015)
- Member, Search Committee for Elementary Science Tenure-Track Faculty (2015)

Other

- Member, CEHD Research Advisory Group (2024-2026)
- Member, George Mason University Institutional Review Board (2022 - 2026)
- Speaker, PhD in Education Student Organization, Research and Publications (2022)
- Member, Cross-Disciplinary Task Force, CEHD (2013-2015)
- Member, Sustainability Studies Academic Council, CEHD representative (2012 – 2014)
- Member, PhD Portfolio Redesign Committee, CEHD (2011-2012)
- Director, Science, Technology and Engineering Summer Camp, New Century College (2009)
- Director, Get Your Hands Dirty Summer Camp, New Century College (2009)
- Member, Sustainability Minor Committee (2007-2008)
- Member, KECK-Kaleidoscope Interdisciplinary Core Team (2007-2008)
- Program Assessment Committee, CEHD (2007-2011)

National/International Professional Service

American Educational Research Association

- Graduate Student Mentor, Studying and Self-Regulated Learning SIG (2022)
- Member, Studying and Self-Regulated Learning SIG Graduate Student Mentoring Program, (2016- 2018)
- Graduate Student Committee Advisor, Studying and Self-Regulated Learning SIG (2012-2014)
- Proposal Reviewer, Annual Conference, Studying and Self-Regulated Learning SIG and Science Teaching and Learning SIG (2007 – present)

Association for Science Teacher Education

- Executive Leadership Team Member (2025-2026)
- Writing Team Member, Joint Position Statement for the Need for Diverse Teachers (ASTE, NCTM, NCSS, NSTA, NCTE, AMTE)
- Director, Call to Reflection and Action Summit (2023 - 2026)
- Elected Board Member, ASTE Leadership committee (2023-2026)
- Chair, Equity Committee (2023-2026)
- Faculty Mentor, ASTE Annual Meeting (2018, 2022, 2023)
- Associate Editor, Journal of Science Teacher Education (2020-2025)
- Section Editor, Electronic Journal for Research in Science and Mathematics Education (2019 – 2026)
- Elected Member, Elections Committee, Chair (2019-2020)
- Elected Member, Elections Committee, Co-Chair (2018-2019)
- Moderator, Fireside Chat with Dr. Felicia Moore Mensah (2018)
- Member, Publication Committee (2015- 2017)
- Member, Professional Development Committee (2014- 2016)
- Proposal Reviewer, Annual Conference (2007 – present)

National Association for Research in Science Teaching

- Member, Editorial Review Board, *Journal of Research in Science Teaching* (2023-2026)

- Co-Chair, Early Career Research Award Committee (2024-2025)
- Member, Early Career Research Award Committee (2022-2024)
- Speaker, Graduate Student Mentor Session (2019, 2021)
- Leadership Team, Strand 2 Coordinator - Science Learning: Contexts, Characteristics and Interactions (2017-2019)
- Mentor for New Members (2014)
- Leadership Team, Strand 15 Coordinator – Policy (2012 – 2014)
- Leadership Team, Strand 9 Coordinator – Reflective Practice (2008-2010)
- Proposal Reviewer, Annual Conference (2007 – present)

National Science Teachers' Association

- Keynote speaker, National Congress on Science Education (2023)
- Proposal reviewer (2022-2023)
- Keynote speaker, NSTA Virtual STEM Education Conference (2018)
- Panel member and Professional Development Provider, The GE Foundation K-12 STEM Integration Conference (2018)
- Real-World Emerging Technologies Advisory Group (2017)

School Science and Mathematics Association

- Associate Editor, School Science and Mathematics Journal (2011-2026)
- Member, School Science and Mathematics Association Membership Committee (2014-2018)

Editorships and Editorial Boards

- Special Issue Editor, Using Epistemic Network Analysis to Provide Nuanced Perspectives in STEM Education Research, *Journal of Science Education and Technology* (2023-2024)
- Guest Associate Editor, *Frontiers in Educational Psychology,* Self-regulated Learning in Online Settings collection (2021-2022)
- International Journal of Science Education (2022 – present)
- Research in STEM Education (Singapore; 2021-present)
- Alberta Journal of Educational Research (Canada; 2020 – present)
- Journal of Science Education and Technology (2017-2020)
- European Journal of STEM Education (The Netherlands; 2016-2020)
- Journal of STEM Education Editorial Board (2014 – 2018)
- Journal of Science Teacher Education (2014-2020)

Promotion and Tenure External Evaluations

- Texas Tech University, TX (2025)
- University of Tulsa, OK (2025)
- University of South Carolina, SC (2024)
- The George Washington University, DC (2023)
- Washington State University, WA (2023)
- University of Tulsa, OK (2023)
- Drexel University, PA (2022)
- Purdue University, IN (2022)

- Indiana University, IN (2022)
- Oklahoma State University, OK (2021)
- Washington State University, WA (2021)
- Drexel University, PA (2021)
- Purdue University, IN (2020)
- Washington State University, WA (2020)
- Florida International University, FL (2020)
- Georgia State University, GA (2020)
- Drexel University, PA (2019)
- North Carolina State University, NC (2019)
- Ball State University, IN (2019)
- Pennsylvania State University, PA (2019)
- University of Minnesota, College of Education Excellence in Research Award, MN (2019)
- Adrian College, MI (2018)
- Georgia State University, GA (2018)
- University of Tennessee (2018)
- Purdue University, IN (2018)
- Kent State University, OH (2017)
- University of Minnesota, MN (2017)
- University of Nebraska, NE (2017)
- National Institute of Education, Singapore (2017)

Awards Committees

- National Science Foundation, Ad Hoc Reviewer, SBE Postdoctoral Research Fellowship (2019)
- Awards Committee, Foundations of Educational Technology Conference STEM Schools Award (2014 - 2019)
- American Board for Certification of Teacher Excellence (2010-2011)
- National Science Foundation, Grant Review Committee (2008, 2017)
- Reviewer, National Science Teachers' Association, NCATE Special Programs Assessment (2007- 2009)

Consulting

- Proposal Evaluator, Ralph E. Power Junior Faculty Award, ORAU (2025)
- Expert Review Panel, NASA Office of STEM Engagement, Internship Outcome Assessment and Career Readiness Assessment (2021, 2022)
- Digital Learning Object project, North Carolina State University, Self-Regulated Learning Digital Learning Object video (2021)
- Roundtable member, Changing the Face of STEM. Presented by URU The Right to Be, in collaboration with the National Academies of Science, Engineering and Medicine (2018)
- Consultant, National Science and Technology Council Committee on STEM Education (2015)
- Consultant for Science Education and Educational Psychology, Good Thinking! Project, Smithsonian Institution (2015)

- Research Consultant, STEM for All, NSF funded project (2013)
- Field Test Coder, Project Tying Words with Images in Science Teaching (TWIST), NSF funded project through BSCS (2012)
- Consultant, Science Education Resource Center (SERC) (2010)
- Psychometrician, National Aeronautics and Space Administration, Department of Education, Headquarters, Washington, DC. (2008-2011)
- Author, Wild Horse and Burro Program Curriculum, Bureau of Land Management (2009-2010)
- Reviewer, Undergraduate Geocognition Activities, Science Education Resource Center at Carleton College (2008-2010)
- Workshop Presenter, Assessing Inquiry, funded by Howard Hughes Medical Institute (2008-2009)
- Item Analysis Consultant, American Association for the Advancement of Science, Force and Motion (2008)
- K-12 National Engineering Standards, American Society for Engineering Education (2007-2008)

State Professional Service

- Invited Presenter, Leveraging the 5E Model for Inclusive Instruction, Virginia Science Education Leadership Association (2025)
- Presenter, Science for All: Integrating Inclusion through 5E Lessons, Virginia Association of Science Teachers (2024)
- Member, Virginia Department of Education Science Standards Advisory Board (2023-2024)
- Higher Education Member, Virginia Grade 8 Science Standard Setting Committee (2022)
- Founder and Director, Donna Sterling Virginia Science Educator Summit (2022-present)
- Judge, Willowcroft Science Scholarship (2021)
- Engineering Infusion into the new Science Standards Expert Committee, Commonwealth of Virginia (2018)
- NGSS Assessment Consultant, Office of the State Superintendent of Education, Washington, DC (2014 – 2015)
- Evaluator, MSP Grant, Virginia Department of Education, Blue Ridge Collaborative for Earth Science (2013-2014)
- Editorial Associate, Virginia Journal of Science Education (2010 – 2013)
- Strand Coordinator, Virginia Association of Science Teachers, Interdisciplinary Strand (2008-2010)
- STEM Alliance Committee, District of Columbia Public Schools (2007-2008)
- Item Writer for New Jersey State Assessments, Project Developed through American Institute for Research, Math, Grades K-8 (2007-2009)
- Item Writer for Ohio State Assessments, Project Developed through American Institute for Research, Math and Science, Grade K-5 project and Grade 6-8 project (2007-2009)
- Member of Writing Committee, Virginia Mathematics and Science Coalition, Science Specialist Task Force Report (2010)

International and National Research Project Advisory Boards

- National Science Foundation DUE – *STEM Teacher Effectiveness and Retention in High-Need Schools: Combining Equity & Ecological Frameworks* (2025-2027)
- Estonian Research Council – *Hybrid Regulation of Learning using Open Learner Models: Towards Supporting Students in Meaningful Learning* (2024-2027)
- National Science Foundation DRK-12 – *Quantifying Curricular Reasoning as a Critical Practice in Teaching Mathematics* (2022 – 2026)
- National Science Foundation DRK-12 – *Collaborative Research: Design and Development of a K-12 STEM Observation Protocol* (2019 – 2022)
- National Science Foundation DRK-12 - *Integration of Engineering Design and Life Science: Investigating the influence of an Intervention on Student Interest and Motivation in STEM Fields* (2018 – 2021)

Professional Organization Memberships

American Educational Research Association
American Society for Engineering Education
Association for Science Teacher Education
International History, Philosophy and Science Teaching Group
European Science Education Research Association
National Association for Research in Science Teaching
National Science Teaching Association
Phi Kappa Theta (Education Honor Society)
School Science and Mathematics Association
Virginia Association of Science Teachers
Virginia Science Education Leadership Association

Doctoral Program Advising Load

Dissertation Chair

Elizabeth Baynard – Science Education Leadership
The relationship between teacher background, collaboration, and common formative assessments in middle school classrooms
Defended Fall 2010

David Nelson – Science Education Research
Rasch analysis of a rating scale for gifted and talented identification
Defended Fall 2014

Michael Mazzarella – Educational Psychology
Expectancy-Value Constructs, Gender, and Achievement: Is There a Difference by Math Course?

Defended Fall 2017

Linda Peterson – Science Education Leadership
Capturing middle school science teachers' perceptions, learning and instructional enactments in professional development designed to facilitate students' collaborative discourse
Defended Spring 2018

Stephanie Stehle – Science Education Research
High School Students Use of Metacognition in Physics Problem Solving
Defended Spring 2022

Andrew Porter – Educational Psychology/Teaching and Teacher Education
Investigating the impact of the self-regulatory instructional planning approach on the lesson planning and self-regulation strategies of pre-service secondary social studies teachers
Defended Spring 2022

Talisa Jackson – Science Education Research
Revealing hidden figures: Critical analysis of girls of color in children's STEM picture books
Defended Summer 2022

Chelsea Gray – Environmental and Public Policy (Co-Chair with Dr. Cynthia Smith)
For the love of sharks and policy: A model of Basking Shark behavior and a framework for communicating individual-based models
Defended Fall 2023

Susan Poland – Science Education Research
Understanding student knowledge of scientific research methods and its impact on student evaluations of scientific claims
Defended Summer 2024

Britt H. Miller – Science Education Research
Exploring influences on teachers' pedagogical content knowledge for scientific argumentation in upper elementary education
Defended Spring 2024

Dissertation Committee Member

Catherine Scott - Teaching and Teacher Education
A comparison case study of the characteristics of science, technology, engineering and mathematics or (STEM) focused high schools
Defended Spring 2009

Suzanne Hiller – Educational Psychology
The impact of a citizen science program on student achievement and motivation: A social cognitive career framework
Defended Fall 2012

Pamela Bailey – Mathematics Education Leadership

Developing rich tasks: Effects on planning and implementing mathematics instruction
Defended Fall 2013

Molly Rothermel Rawding – Mathematics Education Leadership
Exploring novice and experienced middle school math teachers perceptions towards professional learning and professional learning communities
Defended Fall 2013

David Vallett – STEM Cognition
Factors influencing learner conceptions of force: Exploring the interaction of visuospatial ability and motivation.
Defended Spring 2013

Marjee Chmiel – Research Methods
Science on TeacherTube: A mixed methods analysis of teacher produced video
Defended Summer 2012

Rebecca Cheng – STEM Cognition
Relationship between visual attention and flow experience in serious educational games: An eye tracking analysis
Defended Fall 2013

Brian Mandell – Educational Psychology
Examining middle school science student self-regulated learning in a hypermedia learning environment through microanalysis.
Defended Fall 2013

Stacey Alwine – High Education Administration
A case study examining the explicit method of critical thinking instruction in a community college English classroom.
Defended Spring 2014

Ashley Sitar – Environmental Education and Policy Studies
Environmental conditions for dolphins mitigated by dolphin watching tourism in Boca del Toro
Defended Spring 2015

Theresa Wills – Mathematics Education Leadership
The effects of strategy maps on teachers' ability to make connections during math-talk.
Defended Spring 2015

Yolanda Gibson Barber – Higher Education
Millennial alumni giving: Factors for donating to colleges and universities.
Defended Spring 2015

Nancy Spillane – Curriculum and Instruction, The George Washington University
Teacher characteristics and school-based professional development in inclusive STEM-focused high schools
Defended Spring 2015

Rebecca Boyer – Instructional Technology
Instructor presence, content presence, and student presence in online course contexts
Defended Fall 2015

Leshell Hatley – Instructional Technology
Communal learning versus individual learning: An exploratory convergent parallel mixed-method study to describe how young African-American novice programmers learn computational thinking skills in an informal learning environment
Defended Spring 2016

Sarah Glassman – Science Education Leadership
The relationship between observed task characteristics and the pattern of seventh grade students' situational engagement during multiple science instructional units
Defended Spring 2016

Jenell Walsh-Thomas – Environmental Education and Policy Studies
The use of metaphors as climate change communication tool
Defended Fall 2016

Michael Ford – Curriculum and Instruction, The George Washington University
Characteristics of exemplar inclusive STEM-focused high school leaders and their influence on the facilitation of STEM high school goals: A cross case analysis
Defended Fall 2016

Brian Melton – Higher Education
The impact of missionary service on the spiritual development and psychological well-being of Mormon college students
Defended Spring 2017

Danielle Kittrell – Science Education Research
Why they stayed: Narratives of Black women science teachers
Defended Fall 2017

Andrew Quon – Science Education Leadership
How undergraduate research experiences develop student science identify and views on becoming faculty
Defended Spring 2018

Amy Ansong – Learning Technology and Design Research
Examining the role of toys in undergraduate women's decisions to major in engineering
Defended Spring 2018

Stephens – Higher Education
The effects of teaching through gaming on decision-making competencies and motivation levels in a post-baccalaureate military population

Exited with ABD

Elizabeth Crotty – Science Education (University of Minnesota)
Understanding the ways in which teacher leadership teams influence STEM integration in emerging STEM schools
Defended Spring 2018

Sean Tracey – Environmental Education and Policy Studies
Environmental attitudes and behaviors: The role of gender, nationality, and value systems
Defended Spring 2018

Maryam Saroughi – Educational Psychology
Examining relationships among self-efficacy, academic self-regulation, sense of belonging, stereotype threat, well-being and achievement of language minority college students
Defended Spring 2018

Patrick Mitchell – Educational Leadership
Should I stay or should I go: Teacher working conditions and commitment
Defended Fall 2018

Aubrey Whitehead – Educational Psychology
Examining relationships among undergraduates' close social group influences, motivation, and STEM major selection and persistence
Defended Spring 2019

Maimoona Al-Abri – Learning Technology Design Research
Generating design principles toward integrating open educational resources in open educational practices in college courses: A design-based research study
Defended Spring 2020

Jordan Goffena – Educational Psychology
The Transfer of Self-Regulation during the Acquisition of a Motoric Task: A Social-Cognitive Perspective
Defended Spring 2020

Angela Low – Learning Technology Design Research
An Exploration of Emergenetics in the Federal Workplace
Defended Summer 2021

Heba Elsherbeeny – Early Childhood Education
Examining elementary students' development of intercultural competence through self-regulatory prompts
Defended Spring 2022

Xingya (Ivy) Xu – Educational Psychology
College Students' Argumentative Discourse Styles in Relation to 3 by 2 Achievement Goal Orientations and Ability Mindsets in Science Context
Defended Fall 2022

Kason Ching Cheung – Science Education (Oxford University, England)
Students' Meaning Making of Nature of Science through Multimodal Representations
Defended Fall 2024

Kim Cherry – Science Education Research
In Her Own Voice: A Phenomenological Study of Black Women
Defended Spring 2024

Lindsay Watkins – Teaching and Teacher Education
Standard Outcomes Lesson and Reflection (SOLAR) Guide
Defended Summer 2024

Michael O. Briscoe – Educational Psychology
A Web-based-Application Intervention to Improve Problem-Solving Skills Using A Self-Regulated Learning Microanalytic Protocol
Defended Fall 2024

Katherine Culbert – International Education and Educational Leadership
Preparing proposal

Senem Bas – Science Education Research
Preparing proposal

Cristina Procaccino – Research Methods
Preparing Proposal

Kelly Knight – Science Education Research
Preparing proposal

Doctoral Portfolio Chair (Pre-Dissertation)

Mike Mazzarella – Educational Psychology (2014 – 2015)
Maryam Saroughi – Educational Psychology (2011-2015)
David Nelson – Science Education Research (2013 – 2014)
Danielle Kittrell – Science Education Research (2014 – 2016)
Andrew Keck – Science Education Research (2013- 2017)
Carolyn Wilson – Science Education Research (2013 – 2017)
Kim Cherry – Science Education Research (2013 – 2017)
Anthony Ray – International Education (2017 – 2018)
Susan Poland– Science Education Research (2014 – 2019)
Maureen Thompson – Science Education Research (2016 – 2018)
Linda Ensign – Educational Psychology (2017-2019)
Deborah Goudreau – Educational Psychology (2016 – 2019)
Stehle – Science Education Research (2016 – 2020)
Talisa Jackson – Science Education Research (2017 – 2020)
Michelle Colandene– Science Education Research (2017 – 2021)
James Swart – Science Education Research (2018 – 2020)

Laura Laclede – Science Education Research (2019 – 2022)
Brittany Miller – Science Education Research (2021 – 2024)

Doctoral Portfolio Committee Member (Pre-Dissertation)

Elizabeth Baynard – Science Education Leadership (2008-2010)
Nancy Irby – Educational Psychology (2007-2010)
Suzanne Hiller – Educational Psychology (2008-2012)
Marjee Chmiel – Instructional Technology (2008-2012)
Rebecca Cheng – STEM Education (2010 – 2012)
Brian Mandell – Educational Psychology (2009 – 2012)
Dave Vallet – Science Education Research (2011- 2012)
Charles Gillmarten – Educational Neuroscience (2012 – 2013)
Rebecca Boyer – Instructional Technology (2010 – 2013)
Rebecca Stephens – Higher Education (2012 – 2013)
Stacey Alwine – Higher Education Administration (2012 – 2013)
Sarah Glassman – Science Education Leadership (2007 – 2014)
Deborah Crawford – Mathematics Education Leadership (2012 – 2014)
Andrea Weiss – Mathematics Education Leadership (2011 – 2017)
Peggy Koenig – Science Education Leadership (2011 – 2017)
Jodi Carr – Educational Policy (2012 – 2017)
Kristofer Pachla – Educational Policy (2012 – 2014)
Yolanda Gibson – Higher Education Administration (2013 – 2014)
Whitney Garrett Keaton – Science Education Research (2014 – 2017)
Kimberly Fair – Mathematics Education Leadership (2014 – 2019)
Lindsey Burke – Education Policy (2014 – 2017)
Patrick Mitchell – Education Leadership (2014 – 2017)
Mike Mizzula – Mathematics Education Leadership (2014 – 2019)
Mike Briscoe – Educational Psychology (2014-2016)
Aubrey Whitehead – Educational Psychology (2015 – 2017)
Christine Byers – Science Education Research (2016 – 2019)
Jordan Goffena – Educational Psychology (2015 – 2018)
Angela Low – Learning Technologies and Design Research (2017 – 2019)
Andrew Porter – Teaching and Teacher Education (2017 – 2020)
Lindsay Zurowski – Teaching and Teacher Education (2017 – 2019)
Ivy Xu – Educational Psychology (2017 – 2020)
Senem Bas – Science Education Research (2018 – 2024)
Derrick Wong – Interdisciplinary Studies (2021 – 2025)
Kelly Knight – Science Education Research (2020 – 2025)
Rebecca Bushway – Science Education Research (2023 – present)
Elizabeth Brown – Science Education Research (2023 – present)
Kendra Chevon Heffelbower – Mathematics Education Leadership (2024 – present)

Master's Thesis and Capstone Advising Load - Chair

Diana Dulanto – Educational Psychology (Capstone competed Spring 2011)
Emily Swain – Educational Psychology (defended Fall 2012)
Rebecca Swezdo – Educational Psychology (defended Fall 2012)
Sean Tracy – Environmental Science and Public Policy (defended Fall 2012)
Ross Blair – Environmental Science and Public Policy (defended Spring 2013)
Meredith McCone – Environmental Science and Public Policy (defended Fall 2013)
Lauren Kinne – Environmental Science and Public Policy (defended Spring 2014)
Chelia Char – Environmental Science and Public Policy (defended Spring 2014)
Deb Callison – Educational Psychology (defended Fall 2014)
Elizabeth Hall – Educational Psychology (defended Summer 2015)
Whitney Denham – Environmental Science and Public Policy (defended Summer 2015)
Gustavo Osrio – Educational Psychology (defended Fall 2015)
Sarah Kahler – Educational Psychology (defended Fall 2015)
Kelly Claiborne – Educational Psychology (Capstone completed Fall 2015)
Meredith McCone – Environmental Science and Public Policy (defended Fall 2015)
Jodi Griffin – Educational Psychology (defended Summer 2016)
Ashley Sgandurra – Educational Psychology (Capstone completed Spring 2016)
Kailiene Najacque – Educational Psychology (Capstone completed Fall 2016)
Asli Yilmaz Ceran – Educational Psychology (Capstone completed Fall 2016)
Divya Ramani – Educational Psychology (Capstone completed Fall 2016)
Mathilde Coyle – Educational Psychology (Capstone completed Fall 2017)
Erin Murrock – Educational Psychology (Capstone completed Fall 2017)
Ashley Gray – Environmental Science and Public Policy (defended Fall 2019)