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EDUCATION

2006	**Stanford University**, School of Education, Stanford, California Ph.D. in Curriculum and Teacher Education, Science Education
2001	**University of Denver**, Denver, Colorado M.A. in Education, Specialization in Technology in Education
1999	**University of Colorado Boulder**, Boulder, Colorado B.A. in Biological Sciences - Environmental, Population, and Organismic Biology

PROFESSIONAL POSITIONS

2018 –	**Professor,** Science Education, STEM Education, School of Education, University of Colorado Boulder **Associate Dean of Faculty,** School of Education, University of Colorado Boulder (2018-2021)
2013 - 2018	**Associate Professor,** Science Education, Curriculum and Instruction, School of Education, University of Colorado Boulder **Chair,** CU Teach STEM Teacher Education Program (2017-2018) **Chair,** Curriculum and Instruction: Mathematics and Science Program Area (2017-2018)
2008 - 2013	**Assistant Professor,** Science Education, Curriculum and Instruction, School of Education, University of Colorado Boulder
2006 - 2008	**Research Scientist,** Max Planck Institute for Educational Research, Berlin, Germany
2006 - 2007	**Guest Researcher,** Leibniz Institute for Science Education, Kiel, Germany
2005 - 2006	**University Supervisor and Teaching Assistant,** Stanford Teacher Education Program
2002 – 2006	**Research Assistant**, Stanford Education Assessment Laboratory, Stanford University, California
2000 – 2002	**Science Teacher**, Wheat Ridge Senior High School, Wheat Ridge, Colorado

AWARDS AND HONORS

2021	**Outstanding Coach,** Faculty Success Program, National Center for Faculty Development and Diversity
2019	**Excellence in Leadership and Service Award,** Boulder Faculty Assembly, University of Colorado Boulder
2015	**Young Leader,** Science, Technology and Society *forum,* Nominated by the National Science Foundation (1 of 40 International Leaders under 40), Kyoto, Japan
2014	**Provost's Faculty Achievement Award,** University of Colorado Boulder
2012	**2011 Presidential Early Career Award for Scientists and Engineers (PECASE),** Office of Science and Technology Policy, Executive Office of the President of the United States
2009	**Chancellor's Award for Excellence in STEM Education**, Integrating STEM Education at Colorado (iSTEM), University of Colorado, Boulder
2009	**Faculty Appreciation Award**, Office of Diversity, Equity, & Community Engagement, University of Colorado, Boulder
2002-2003	**Maxima A. Dandoy Fellowship**, Stanford University

JOURNAL ARTICLES

Aran, Ö. C., Furtak, E.M, & Buell, J. Y. (in press). Supporting chemistry teachers' formative assessment with a three-dimensional learning progression. *International Journal of Science Education*.

Ertl, S., Hartinger, A., Kücherer, B., & Furtak, E. M. (2022). Formative Assessment in the German Student-Teacher-Conference Format: Student Perceptions and Implications for Motivational Aspects of Learning. *International Journal of Elementary Education*, *11*(3), 64-75.

Kang, H. & Furtak, E.M. (2021). Learning theory, classroom assessment, and equity. *Educational Measurement: Issues and Practice, 40*(3), 73-82.

Penuel, W. R., Furtak, E. M., & Farrell, C. C. (2021). Research-practice partnerships in education: Advancing an evolutionary logic of systems improvement. *Die Deutsche Schule, 113*(1), 45-62.

Fine, C. & Furtak, E.M. (2020). The SAEBL checklist: Science classroom assessments that work for emergent bilingual Learners. *The Science Teacher*, 87(9), 38-48.

Fine, C. & Furtak, E.M. (2020). A framework for science classroom assessment task design for emergent bilingual learners. *Science Education, 104*(3), 393-420.

Furtak, E.M. & Penuel, W.R. (2019). Coming to terms: Addressing the persistence of "hands-on" and other reform terminology in the era of science as practice. *Science Education, 103*(1), 167-186.

Furtak, E.M., Bakeman, R. & Buell, J.Y. (2018). Developing knowledge-in-action with a learning progression: Sequential analysis of teachers' questions and responses to student ideas. *Teaching and Teacher Education. 76,* 267-282.

Furtak, E.M., Circi, R. & Heredia, S.C. (2018). Exploring alignment among learning progressions, teacher-designed formative assessment tasks, and student growth: Results of a four-year study. *Applied Measurement in Education, 31*(2) 143-156.

Furtak, E. M., Ruiz-Primo, M. A., & Bakeman, R. (2017). Exploring the utility of sequential analysis in studying informal formative assessment practices. *Educational Measurement: Issues and Practice*, *57*(1), 90–92.

Heredia, S.C., Furtak, E.M., & Morrison, D. (2016). Exploring the influence of plant and animal item contexts on student response patterns to natural selection multiple-choice items. *Evolution: Education and Outreach, 9*(10), 1-11.

Heredia, S. C., Furtak, E. M., Morrison, D., & Renga, I. P. (2016). Science Teachers' Representations of Classroom Practice in the Process of Formative Assessment Design. *Journal of Science Teacher Education*, *27*(7), *697-717*

Taylor, J., Furtak, E. M., Kowalski, S., Martinez, S., Slavin, R., Wilson, C., & Stuhlsatz, M. (2016). Research Syntheses in Science Education: Cross-Case Analyses and Implications for Research Design, Replication, and Reporting Practices. *Journal of Research in Science Teaching, 53*(8), 1216-1231.

Furtak, E.M., Kiemer, K., Circi, R., Swanson, R., de Leon, V.A., Morrison, D. & Heredia, S. (2016). Teachers' Formative Assessment Abilities and Their Relationship to Student Learning: Findings from a Four-Year Intervention Study. *Instructional Science, 44*(3), 267-291.

Furtak, E.M. & Heredia, S. (2016). A Virtuous Cycle: The Formative Assessment Design Cycle: Developing Tools in Support of the Next Generation Science Standards. *The Science Teacher* 83(2), 36-41.

Knight, J. K., Wise, S. B., Rentsch, J., & Furtak, E. M. (2015). Cues Matter: Learning Assistants Influence Introductory Biology Student Interactions during Clicker-Question Discussions, *CBE-Life Sciences Education, 14*, 1–14.

Furtak, E. M., & Heredia, S. (2014). Exploring the Influence of Learning Progressions in Two Teacher Communities. *Journal of Research in Science Teaching, 51*(8), 982-1020.

Furtak, E. M., Morrison, D. L., & Kroog, H. (2014). Investigating the Link Between Learning Progressions and Classroom Assessment. *Science Education, 98*(4), 640-673.

Briggs, D.C., Ruiz-Primo, M.A., Furtak, E.M., Shepard, L., & Yin, Y. (2012). Meta-Analytic Methodology and Inferences about the Efficacy of Formative Assessment. *Educational Measurement: Issues and Practice, 31* (4), 13-17.

Furtak, E. M. (2012). Linking a Learning Progression for Natural Selection to Teachers' Enactment of Formative Assessment. *Journal of Research in Science Teaching*. 49(9), 1181-1210.

Furtak, E.M., Seidel, T., Iverson, H. & Briggs, D.C. (2012). Experimental and Quasi-Experimental Studies of Inquiry-Based Science Teaching: A Meta-Analysis. *Review of Educational Research,* 82(3), 300-329.

Furtak, E. M. & Kunter, M. (2012). Effects of Autonomy Supportive Science Teaching on Student Learning and Motivation. *Journal of Experimental Education, 80*(3), 284-316.

Furtak, E. M., Hardy, I., Beinbrech, C., Shavelson, R. J., & Shemwell, J. T. (2010). A Framework for Analyzing Evidence-Based Reasoning in Science Classroom Discourse. *Educational Assessment, 15*(3-4), 175-196.

Shemwell, J. T., & Furtak, E. M. (2010). Science Classroom Discussion as Scientific Argumentation: A study of conceptually rich (and poor) student talk. *Educational Assessment, 15*(3-4), 222-250.

Brown, N. J. S., Furtak, E. M., Timms, M., Nagashima, S. O., & Wilson, M. (2010). The Evidence-Based Reasoning Framework: Assessing Scientific Reasoning. *Educational Assessment, 15*(3-4), 142-174.

Furtak, E. M., & Alonzo, A. C. (2010). The Role of Content in Inquiry-Based Elementary Science Lessons: An Analysis of Teacher Beliefs and Enactment. *Research in Science Education, 40*(3), 425-449.

Furtak, E. M., & Ruiz-Primo, M. A. (2008). Making Students' Thinking Explicit in Writing and Discussion: An Analysis of Formative Assessment Prompts. *Science Education, 92*, 799-824.

Furtak, E. M., Ruiz-Primo, M. A., Shemwell, J. T., Ayala, C. C., Brandon, P., Shavelson, R. J., Yin, Y. (2008). On the Fidelity of Implementing Embedded Formative Assessments and its Relation to Student Learning. *Applied Measurement in Education, 21*(4), 360-389.

Ayala, C. C., Shavelson, R. J., Ruiz-Primo, M. A., Brandon, P., Yin, Y., Furtak, E. M., Young, D.B., & Tomita, M.K. (2008). From Formal Embedded Assessments to Reflective Lessons: The development of formative assessment suites. *Applied Measurement in Education, 21*(4), 315-334.

Brandon, P., Young, D. B., Shavelson, R. J., Jones, R., Ayala, C. C., Ruiz-Primo, M. A., Yin, Y., Tomita, M.K., & Furtak, E.M. (2008). Lessons Learned from the Process of Curriculum Developers' and Assessment Developers' Collaboration on the Development of Embedded Formative Assessments. *Applied Measurement in Education, 21*(4), 390-402.

Shavelson, R. J., Young, D. B., Ayala, C. C., Brandon, P. R., Furtak, E. M., Ruiz-Primo, M. A., Tomita, M.K. & Yin, Y. (2008). On the Impact of Curriculum-Embedded Formative Assessment on Learning: A collaboration between curriculum and assessment developers *Applied Measurement in Education, 21*(4), 295-314.

Yin, Y., Shavelson, R. J., Ayala, C. C., Ruiz-Primo, M. A., Brandon, P., Furtak, E. M., Tomita, M.K., & Young, D.B. (2008). On the Impact of Formative Assessment on Student Motivation, Achievement, and Conceptual Change. *Applied Measurement in Education, 21*(4), 335-359.

Ruiz-Primo, M.A. & Furtak, E.M. (2007). Exploring Teachers' Informal Formative Assessment Practices and Students' Understanding in the Context of Scientific Inquiry. *Journal of Research in Science Teaching, 44*(1), p. 57-84

Ruiz-Primo, M.A. & Furtak, E.M. (2006). Informal Formative Assessment and Scientific Inquiry: Exploring Teachers' Practices and Student Learning. *Educational Assessment*, *11*(3 & 4), p. 237–263.

Furtak, E.M. (2006). The Problem with Answers: An exploration of guided scientific inquiry teaching. *Science Education, 90*(3), p. 453-467.

Furtak, E.M & Ruiz-Primo, M.A. (2005, January). Questioning Cycle: Making Students' Thinking Explicit During Scientific Inquiry. *Science Scope,* p. 22-25.

BOOKS

Furtak, E.M. (2023). *Formative assessment for 3D science learning: Supporting ambitious and equitable instruction*. New York: Teachers College Press.

Furtak, E.M. (2018). *Supporting Teachers' Formative Assessment Practice with Learning Progressions.* New York: Routledge.

Furtak, E.M., Glasser, H., & Wolfe, Z.M. (2016). *The Feedback Loop: Using Formative Assessment Data for Science Teaching and Learning.* Arlington, VA: National Science Teachers Association Press.

Furtak, E.M. & Renga, I.R. (Eds.). (2014). *The Road to Tenure: Interviews, Rejections, and Other Humorous Experiences*. Lanham, MD: Rowman & Littlefield.

Furtak, E.M. (2009). *Formative Assessment for Secondary Science Teachers.* Thousand Oaks, CA: Corwin Press.

Furtak, E.M. (2008). *The Dilemma of Guidance: An Exploration of Scientific Inquiry Teaching*. Saarbrücken, Germany: VDM Verlag Dr. Müller.

BOOK CHAPTERS

Furtak, E.M., Henson, K. & Buell, J.Y. (in press). Using learning progressions in professional development programs. In *Handbook on Science Learning Progressions,* H. Jin, D. Yan & J. Krajcik (Eds). Routledge.

Furtak, E.M. (2023). Assessing science content and inquiry. In *Debates in Science Education (2nd Ed.),* J. Dillon & M. Watts (Eds), (pp 1302-1346). London: Routledge.

Furtak, E.M., Penuel, W.R., Badrinarayan, A., Patrick-Stuart, R.P. & Duwe, S. (2021). Crosscutting concepts: A sensemaking perspective. In *Crosscutting Concepts: Strengthening Science and Engineering Learning,* J. Nordine & O. Lee *(Eds).* Arlington, VA: NSTA Press.

Gray, R. & Furtak, E.M. (2020). Ambitious science teaching in context: Institutional constraints in practice-based teacher preparation. In *Preparing science teachers through practice-based teacher education,* Stroupe, D., Hammerness, K. & McDonald, S. *(Eds),* (pp. 205-220). Cambridge, MA: Harvard Educational Press.

Furtak, E.M., Heredia, S.C., & Morrison, D.M. (2019). Formative assessment in science education: Mapping a shifting terrain. In H. Andrade, R. Bennett, and G. Cizek (Eds.), pp. 97-125. *Handbook of Formative Assessment in the Disciplines.* New York: Taylor & Francis.

Furtak, E.M. & Tayne, K. (2019). Affordances and constraints of learning progression designs in supporting formative assessment. In E. McLaughlin, O. Finlayson, S. Erduran & R. Childs (Eds)., *Bridging Research and Practice in Science Education: Selected Papers from the ESERA 2017 Conference*. Dordrecht: Springer.

Briggs, D.C. & Furtak, E.M. (2019). Learning progressions and embedded assessment. In S.M. Brookhart & J.H. McMillan (Eds.), *Classroom Assessment and Educational Measurement.* New York: Routledge.

Furtak, E.M. & Kiemer, K. (2018). Identifying teacher and student contributions during assessment conversations. In E. Brauner, M. Boos & M. Kolbe (Eds.), *The Cambridge Handbook of Group Interaction Analysis* (pp. 556-564). Cambridge: Cambridge University Press.

Furtak, E.M. (2017). Confronting dilemmas posed by three-dimensional classroom assessment: Introduction to a virtual issue of Science Education. *Science Education, 00,* p. 1–14, https://doi.org/10.1002/sce.21283

Furtak, E.M. (2017). Studying Science Teacher and Student Learning with Mixed Methods: A Case of Classroom Research. In *SAGE Research Methods Cases*. http://dx.doi.org/10.4135/9781526410061.

Furtak, E. M., Thompson, J., Braaten, M., & Windschitl, M. (2012). Learning Progressions to Support Ambitious Teaching Practices. In A. C. Alonzo & A. W. Gotwals (Eds.), *Learning Progressions in Science* (pp. 405-434). The Netherlands: Sense Publishing.

Furtak, E. M., Shavelson, R. J., Shemwell, J. T., & Figueroa, M. (2012). To Teach or Not to Teach Through Inquiry: Is that the question? In S. M. Carver & J. Shrager (Eds.), *The journey from child to scientist: Integrating cognitive development and the education sciences* (pp. 227-244). Washington, DC: American Psychological Association.

Furtak, E. M. (2011). An American in Germany. In C. M. Graham (Ed.), *Coping with Anti-*

Americanism: A Guide to Getting the Most Out of Studying Abroad (pp. 119-121). Washington, D.C.: Potomac Books.

Furtak, E. M., & Shavelson, R. J. (2009). Guidance, Conceptual Understanding, and Student Learning: An Investigation of Inquiry-Based Teaching in the US. In T. Janik & T. Seidel (Eds.), *The Power of Video Studies in Investigating Teaching and Learning in the Classroom* (pp. 181-203). Munich: Waxmann.

Ruiz-Primo, M. A., Furtak, E. M., Ayala, C. C., Yin, Y., & Shavelson, R. J. (2009). On the Impact of Formative Assessment on Student Science Learning and Motivation. In H. L. Andrade & G. J. Cizek (Eds.), *Handbook of Formative Assessment* (pp. 139-158). New York: Routledge.

Shavelson, R. J., Yin, Y., Furtak, E. M., Ruiz-Primo, M. A., Ayala, C. C., Young, D. B., et al. (2008). On the Role and Impact of Formative Assessment on Science Inquiry Teaching and Learning. In J. Coffey, R. Douglas & C. Stearns (Eds.), *Assessing Science Learning* (pp. 21-36). Arlington, VA: NSTA Press.

REFEREED CONFERENCE PROCEEDINGS

Deverel-Rico, C. & Furtak E.M. (2021). *Challenges in interpreting student responses for three-dimensional classroom assessment.* In de Vries, E., Hod, Y., & Ahn J. (Eds.). Proceedings of the 15th International Conference of the Learning Sciences - ICLS 2021, pp. 346-353. Bochum, Germany: International Society of the Learning Sciences.

Furtak, E.M. (2021). Supporting Science Teaching Practice with Learning Progressions. *In Research Conference 2021: Excellent Progress for every student*. Australian Council for Educational Research. https://research.acer.edu.au/rc21-30/rc2021/papers/20/

Heredia, S.C., Furtak, E.M., Morrison, D.L. & Gröschner, A. (2021). The disciplinary nature of science teachers' talk in the process of formative assessment design. In de Vries, E., Hod, Y., & Ahn J. (Eds.). Proceedings of the 15th International Conference of the Learning Sciences - ICLS 2021, pp. 729-732. Bochum, Germany: International Society of the Learning Sciences.

Furtak, E.M., Kang, H., Pellegrino, J., Harris, C., Krajcik, J., Morrison, D., Bell, P., Lakhani, H., Suárez, E., Buell, J., Nation, J., Henson, K., Fine, C., Tschida, T., Fay, L., Biddy, Q., Penuel, W., & Wingert, K. (2020). *Emergent design heuristics for three-dimensional assessments that promote equity.* In Horn, I. & Gresalfi, M. (Eds.). 14th International Conference of the Learning Sciences (ICLS) 2020, Volume 3, pp. 1482-1494. Nashville, TN: International Society of the Learning Sciences [Virtual Conference].

Furtak, E.M., Deverel-Rico, C., Buell, J.Y., Henson, K. & Tayne, K. (2020). *Scaling a system of professional learning for formative assessment co-design: The Aspire Project.* In Horn, I. & Gresalfi, M. (Eds.). 14th International Conference of the Learning Sciences (ICLS) 2020, Volume 5, pp. 2623-2624. Nashville, TN: International Society of the Learning Sciences [Virtual Conference].

Furtak, E.M., Binder, T., & Henson, K. (2018). *Designing from outer space: Tensions in the development of a task to assess a crosscutting concept.* In Kay, J. and Luckin, R. (Eds.). Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning Sciences (ICLS) 2018, Volume 2, 528-537. London, UK: International Society of the Learning Sciences.

Furtak, E.M. & Tayne, K. (2018). *Mobilizing learning progressions for teacher use: Examining the utility of outside learning progressions in task co-design.* In Kay, J. and Luckin, R. (Eds.). Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning Sciences (ICLS) 2018, Volume 2, 520-527. London, UK: International Society of the Learning Sciences.

de León, V.A., Furtak, E.M., Morrison, D., Swanson, R., & Kiemer, K. (2016) Learning Progressions as Tools for Classroom Practice. In Looi, C. K., Polman, J. L., Cress, U., and Reimann, P. (Eds.). (2016). *Transforming Learning, Empowering Learners: The International Conference of the Learning Sciences (ICLS) 2016, Volume 1, 1247-1248.* Singapore: International Society of the Learning Sciences.

Furtak, E.M. (2015) The Uninvited Guest. *Proceedings of the Science Education at the Crossroads Conference. Cleveland, OH.* Available online at http://sciedxroads.org/wp-content/uploads/2014/10/2015_XRoads.pdf.

Furtak, E.M. (2014). Where is the Teacher in Research on Science Learning? (2014, September). *Proceedings of the Science Education at the Crossroads Conference (p. 30-31). Portland, OR.* Available online at www. Sciedxroads.org/proceedings2014.html.

Furtak, E. M., Morrison, D. L., Henson, K., & Roberts, S. A. (2010, July). *Centering a Professional Learning Community on a Learning Progression for Natural Selection: Transforming Community, Language, and Instructional Practice.* In Gomez, K., Lyons, L., & Radinsky, J. (Eds.) *Learning in the Disciplines: Proceedings of the 9th International Conference of the Learning Sciences (ICLS 2010) - Volume 1, Full Papers* (pp. 129-136). International Society of the Learning Sciences: Chicago IL.

Furtak, E. M. (2009). *Toward Learning Progressions as Teacher Development Tools.* In A.C. Alonzo & A.W. Gotwals, Eds, *Learning Progressions in Science Conference*, http://education.msu.edu/projects/leaps/proceedings/Default.html.

COMMISSIONED PAPERS AND TECHNICAL REPORTS

Furtak, E.M. & Lee, O. (2023). *Equity and justice in STEM classroom assessment.* In Harris, C.J. Wiebe, E., Grover, S., & Pellegrino, J.W. (Eds.) (2023). *Classroom-based STEM assessment: Contemporary issues and perspectives*. Community for Advancing Discovery Research in Education (CADRE). Education Development Center, Inc.

Furtak, E.M. (2006). *Formative Assessment in K-8 Science Education: A Conceptual Review.* Commissioned paper for the Committee on Science Learning, Kindergarten through Eighth Grade, National Research Council.

Ruiz-Primo, M.A. & Furtak, E.M. (2004). *Informal Assessment of Students' Understanding of Scientific Inquiry*. CSE Technical Report 639. Center for Research on Evaluation, Standards, and Student Testing/UCLA.

CONFERENCE PAPERS

Furtak, E.M., Deverel-Rico, C., Student, S. & Burkhardt, A. *How Can Crosscutting Concepts Organize Formative Assessments Across Science Classrooms? Results of a Video Study*. Paper presented at the annual meeting of the American Educational Research Association, April 15, 2023, Chicago, IL.

Furtak, E.M. (2021). *Supporting science teacher practice with learning progressions*. Invited paper presented at the Australian Council for Educational Research Conference [Virtual Conference].

Furtak, E.M. & Deverel-Rico, C. (2021). *Two paradigms for formative assessment and their consequences for opportunity to participate in science learning.* Paper presented at the annual meeting of the American Educational Research Association, April 11, 2021 [Virtual conference].

Furtak, E. M., Buell, J., Henson, K., Deverel-Rico, C., Tayne, K., Briggs, D. C., Patrick-Stuart, R. & Duwe, S. (2020). *Design of a Professional Learning System Based on a Crosscutting Concept* [Paper Session]. AERA Annual Meeting San Francisco, CA. http://tinyurl.com/su3oxqv (Conference Canceled).

Buell, J., Furtak, E.M., Deverel-Rico, C. & Henson, K. (2019, April). *Toward a framework for selecting phenomena at the intersection of curriculum and assessment.* Paper presented at the annual meeting of the National Association of Research in Science Teaching, Baltimore, MD., April 2, 2019.

Chattergoon, R., Briggs, D.C., Mahr, B. & Furtak, E.M. (2018, April). *Developing a Learning Progression for the Crosscutting Concept of Energy.* Paper presented at the annual meeting of the National Council on Measurement in Education, New York, NY, April 16, 2018.

Furtak, E.M. & Briggs, D.C. (2018, April). *The cost of causal inference: Emerging challenges in an evolving research-practice partnership.* Paper presented at the Annual Meeting of the American Educational Research Association, April 17, 2018, New York, New York.

Fine, C.G. & Furtak, E.M. (2018, April). *Development and piloting of a rubric to evaluate classroom assessments for emerging bilinguals***.** Paper presented at the Annual Meeting of the American Educational Research Association, April 13, 2018, New York, New York.

Henson, K., Chattergoon, R. & Furtak, E.M. (2018, March). *Facilitating teacher interpretation of score reports as a way to understand student ideas linked to a learning progression.* Paper presented at the Annual Meeting of the National Association of Research on Science Teaching, Atlanta, GA.

Buell, J., Tayne, K. & Furtak, E.M. (2018, March). *Challenges in supporting teachers' use of learning progressions for formative assessment*. Paper presented at the Annual Meeting of the National Association of Research on Science Teaching, Atlanta, GA.

Furtak, E.M. & Tayne, K. (2017, August). *Affordances and Constraints of Learning Progression*

Designs in Supporting Formative Assessment. Paper presented at the biennial meeting of the European Science Education Research Association, Dublin, Ireland.

Swanson, R.S. & Furtak, E.M. (2016, April). *Virtual Teacher Learning Community: Developing a Community of Practice with Google Tools*. Paper presented at the annual meeting of the National Association of Research in Science Teaching, Baltimore, MD.

Furtak, E.M., Henson, K., & Buell, J.Y. (2016, April). *Negotiating Goals around Formative Assessment in a Research-Practice Partnership.* Paper presented at the annual meeting of the National Association of Research in Science Teaching, Baltimore, MD.

Furtak, E.M., Thompson, J.J., & van Es, E. (2016, April). *Formative Assessment and Noticing: Toward a Synthesized Framework for Attending and Responding During Instruction.* Paper presented at the annual meeting of the American Educational Research Association, Washington, D.C.

Furtak, E.M. & Circi, R. (2015, April). *Examining Students' Understanding of and Change of Learning on Natural Selection using a Learning Progression.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Furtak, E.M., Cartun, A., Chrzanowski, A., Circi, R., Grover, R., Heredia, S.C., Johnson, R., McClelland, A., & White, K.A.O. (2015, April). *Toward a Participation Metaphor for Formative Assessment.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Furtak, E.M., Circi, R., & Heredia, S.C. (2015, April). *Supporting Teachers' Formative Assessment Practices with a Learning Progression: Results of a Four-Year Study.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Furtak, E.M., Kiemer, K., Swanson, R., deLeon, V. & Circi, R. (2015, April). *Learning Progressions, Formative Assessment, and Professional Development: Results of a Longitudinal Study.* Paper presented at the annual meeting of the National Association of Research in Science Teaching, Chicago, IL.

Heredia, S.C., Furtak, E.M., Morrison, D. & Renga, I.P. (2015, April). *Representations of Practice as Resources for the Development of Formative Assessment Tools.* Paper presented at the annual meeting of the National Association of Research in Science Teaching, Chicago, IL.

Furtak, E.M., Kiemer, K., Swanson, R. & deLeon, V. (2014). *Developing Teachers' Attention to Student Thinking Through Long-Term Professional Development: Results of a Longitudinal Study.* Paper presented at the European Association for Research in Learning and Instruction SIG 11 Meeting, Frauenchiemsee, Germany.

Morrison, D. & Furtak, E.M. (2014). *Promoting Formative Assessment Practices and Tools that Support Equitable Science.* Paper presented at the annual meeting of the National Association of Research in Science Teaching Annual Meeting, Pittsburgh, PA.

Furtak, E.M. & Heredia, S.C. (2013). *Tracing Teachers' Epistemologies About Student Ideas in a Two-Year Professional Development Program*. Paper presented at the European

Association for Research in Learning and Instruction Biennial Meeting, Munich, Germany.

Furtak, E.M. & Ruiz-Primo, M.A. (2013). *Exploring the Quality of Formative Assessment Practices through Sequential Analysis.* Paper presented at the European Association for Research in Learning and Instruction Biennial Meeting, Munich, Germany.

Furtak, E.M. & Heredia, S.C. (2013). *Exploring the Influence of Learning Progressions on Unit Scope and Sequence.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Furtak, E.M., Morrison, D. & Iverson, H. (2013). *Challenges in Developing Classroom Assessments Linked to Multidimensional Learning Progressions.* Paper presented at the annual meeting of the National Association of Research in Science Teaching Annual Meeting, Rio Grande, Puerto Rico.

Furtak, E.M., Heredia, S., Morrison, D. & Renga, I.R. (2012). *Conversations About Common Formative Assessment: Analysis of a Teacher Learning Community*. Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC, Canada.

Heredia, S., Furtak, E.M., & Morrison, D. (2012). *Item Context: How Organisms Used to Frame Natural Selection Items Influence Student Response Choices.* Paper presented at the annual meeting of the National Association of Research in Science Teaching Annual Meeting, Indianapolis, IN.

Furtak, E.M. (2011). *'Flying Blind': An exploration of beginning science teachers' enactment of formative assessment practices.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Furtak, E.M., Morrison, D.M., Iverson, H., Ross, M. & Heredia, S.C. (2011). *A Conceptual Analysis of the Conceptual Inventory of Natural Selection: Improving diagnostic utility through within-item analysis.* Paper presented at the annual meeting of the National Association of Research in Science Teaching Annual Meeting, Orlando, FL.

Furtak, E.M., Roberts, S.A., Morrison, D.M., Henson, K. & Malone, S. (2010, May). *Linking an educative learning progression to teacher practice: results of an exploratory study.* Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Furtak, E. M., Shavelson, R. J., Shemwell, J. T., & Figueroa, M. (2009, October). *To Teach or Not to Teach Through Inquiry: Is that the question?* Paper presented at 'From Child to Scientist: A festschrift to honor the scientific and educational contributions of David Klahr', Pittsburgh, PA.

Furtak, E. M., Hardy, I., Beinbrech, C., Shemwell, J. T., & Shavelson, R. J. (2009, August). *A Framework for Analyzing Reasoning in Science Classroom Discourse*. Paper presented at the 13th Biennial Conference of the European Association for Research in Learning and Instruction, Amsterdam, Netherlands.

Furtak, E. M., Kunter, M., & Hardy, I. (2009, August). *Effects of Autonomy Supportive*

Teaching on Student Learning and Motivation: Results of a Small Experimental Study. Paper presented at the 13th Biennial Conference of the European Association for Research in Learning and Instruction, Amsterdam, Netherlands.

Furtak, E. M., Seidel, T., Iverson, H., & Briggs, D. C. (2009, August). *Recent Experimental Studies of Inquiry-Based Teaching: A meta-analysis and review*. Paper presented at the 13th Biennial Conference of the European Association for Research in Learning and Instruction, Amsterdam, Netherlands.

Shemwell, J. T., & Furtak, E. M. (2009, August). *Problems with Argumentation for Conceptual Science Learning: When Arguments and Explanations Diverge*. Paper presented at the 13th Biennial Conference of the European Association for Research in Learning and Instruction, Amsterdam, Netherlands.

Furtak, E. M. (2009, April). *Learning Progressions to Support Teacher Learning*. Paper presented at the Annual Meeting of the American Educational Research Association.

Shemwell, J. T., & Furtak, E. M. (2009, April). *Argument-Driven Formative Assessment for Conceptual Science Learning*. Paper presented at the Annual Meeting of the American Educational Research Association.

Furtak, E.M. & Seidel, C.M. (2008, April). *Recent Experimental Studies of Inquiry-Based Teaching: A meta-analysis and review.* Paper presented at the meeting of the National Association of Research in Science Teaching Annual Meeting, Baltimore, Maryland.

Furtak, E.M. (2008, March). *Guidance, Conceptual Understanding, and Student Learning: Enactment of an Inquiry-Based Science Curriculum.* Paper presented at the American Educational Research Association Annual Conference, New York, New York.

Furtak, E.M., Hardy, I., Beinbrech, C., Shavelson, R.J., & Shemwell, J.T. (2008, March). *A Framework for Analyzing Reasoning in Science Classroom Discourse*. Paper presented at the American Educational Research Association Annual Conference, New York, New York.

Furtak, E.M. (2007, August). *The Nature of Guidance and the Development of Conceptual Understanding in Inquiry-Based Science Lessons in the US: A Study of Four Middle School Teachers*. Paper presented at the 12th Biennial Conference of the European Association for Research on Learning and Instruction, Budapest, Hungary.

Furtak, E.M. & Alonzo, A.C. (2007, August). *The Role of Content in Inquiry-Based Science Lessons: An Analysis of Beliefs and Enactment Among a Sample of US Science Teachers.* Paper presented at the 12th Biennial Conference of the European Association for Research on Learning and Instruction, Budapest, Hungary.

Furtak, E. M., & Ruiz-Primo, M. A. (2007, April). *Effectiveness of Four Types of Formative Assessment Prompts in Providing Information About Students' Understanding in Writing and in Discussions.* Paper presented at the American Educational Research Association Annual Conference, Chicago, Illinois.

Ruiz-Primo, M. A., & Furtak, E. M. (2006, April). *Teacher Informal Assessment Practices and Their Impact on Students' Learning*. Paper presented at the American Educational Research Association Annual Conference, San Francisco, California.

Furtak, E.M. (2005, April). *Problems with Answers: A study of teachers providing concepts, expecting results, and withholding explanations in guided classroom inquiry*. Paper presented at the Stanford University School of Education Student Research Conference, Stanford, California.

Furtak, E.M. (2005, April). *On the Implementation of Science Inquiry in a Highly Teacher- and Curriculum-Directed Activity: A Study of Teachers Providing and Withholding Answers*. Paper presented at the meeting of the National Association of Research in Science Teaching Annual Meeting, Dallas, Texas.

Ruiz-Primo, M.A., Tomita, M., Furtak, E.M., Schatz, C. & Dolle, J. (2005, April). *A Multi-Method and Multi-Source Approach for Studying Fidelity of Implementation*. Paper presented at the American Educational Research Association Annual Conference, Montreal, Canada.

Ruiz-Primo, M.A., Yuan, K., Furtak, E.M., & Shavelson, R. (2005, April). *On the Validity of Teacher Logs as a Source of Information About Informal Classroom Assessment Practices*. Paper presented at the American Educational Research Association Annual Conference, Montreal, Canada.

Ruiz-Primo, M. A., & Furtak, E. M. (2004, April). *Informal Assessment of Students' Understanding of Scientific Inquiry*. Paper presented at the American Educational Research Association Annual Conference, San Diego, California.

McColskey, W., Parke, H., Furtak, E.M., & Butler, S. (2003, April). *A Structured Professional Development Approach to Unit Study: The experiences of 200 teachers in a national teacher development project*. Paper presented at the American Educational Research Association Annual Conference, Chicago, Illinois.

OTHER PUBLICATIONS

Furtak, E.M. (in press). The Golden Spike. In *Dear Migraine.*

Furtak, E.M. (2022). Formative Assessment. *Routledge Resources Online.* https://doi.org/10.4324/9781138609877-REE62-1

Furtak, E.M. (2021). Should the kids go back to school? Wrong answers only. In *Parenting in the Pandemic: The collision of school, work and life at home,* R. Lowenhaupt & Theoharis, G. (Eds), p. 81-84. Charlotte, NC: Information Age Publishing.

Furtak, E.M., Penuel, W. & Shepard, L. (2021, March 5). Going forth with standardized tests may cause more problems than it solves. *The Conversation.*

Furtak, E.M. (2020, November 19). Professor, Interrupted: The legacy of constant disruptions. *Chronicle of Higher Education.*

Furtak, E.M. (2020). What reality TV taught me about everyday assessment. *Phi Delta Kappan, 101*(7).

Furtak, E.M. & Stroupe, D. (2020). A deficit in shared practice: Reflections on Latour's "Down to Earth." *Science Education, 104*(10), 100-107.

Penuel, W. & Furtak, E.M. (2019). Science-as-practice and the status of knowledge: A response to Osborne. *Science Education, 103*(1), 167-186.

Buell, J.Y., Briggs, D.C., Burkhardt, A., Chattergoon, R., Fine, C., Furtak, E.M., Henson, K., Mahr, B., & Tayne, K. (2019). A Learning Progression for Modeling Energy Flows in Systems. Boulder, CO: Center for Assessment, Design, Research and Evaluation (CADRE).

van der Veen, S., & Furtak, E. M. (2017). What's wrong with imagining you're a 5th grader? *Phi Delta Kappan*, *98*(8), 80.

Furtak, E.M., Pasquale, M. & Azzerah, R. *How teachers can develop formative assessments that fit a three-dimensional view of science learning*. STEM Teaching Tools, Practice Brief #18. http://stemteachingtools.org/brief/18

Furtak, E.M. (2016, June 6). My Writing Productivity Pipeline. *Chronicle of Higher Education. http://chronicle.com/article/My-Writing-Productivity/236712*

Furtak, E. M. (2014, August 22). Sabbatical Planning. *Inside Higher Education*. https://www.insidehighered.com/advice/2014/08/22/essay-how-plan-sabbatical

Klymkowsky, M., & Furtak, E. M. (2009). How the Incoherent State of Science and Mathematics Education Undermines Biological (and Scientific) Literacy [Op-Ed]. *Colorado Higher Ed News*.

Furtak, E.M. (2004, December 1). Standardized Science: Mandatory Testing's Impact on Teaching and Learning [Letter to the Editor]. *Education Week*, p. 41.

INVITED LECTURES

Furtak, E.M. Science Teaching and Learning SIG, American Educational Research Association. Formative Assessment for 3D Science Learning Book chat. Invited by Douglas Larkin, November 28, 2023.

Furtak, E.M. & Kang, H.K. Re-imagining classroom assessment systems for creating equitable opportunities to learn. Classroom Assessment Committee, National Council on Measurement in Education Webinar Series. Invited by Jade Caines Lee and Dustin van Orman, September 24, 2023.

Furtak, E.M. Designing better assessments to promote student engagement and learning (Provost's Teaching Innovation Lecture). Brown University, Invited by Larry Larson, Provost, May 4, 2023.

Furtak, E.M. Assessment of science content and inquiry (Invited plenary lecture). STEM Education Conference, Faculty of Education, University of South Bohemia, České Budějovice, Invited by Lukáš Rokos, November 24, 2022.

Furtak, E.M. Formative assessment in times of digital learning: Building on what we know (Invited keynote address). Fachgruppe Pädagogische Psychologie der Deutschen Gesellschaft für Psychologie [PaePsy], Invited by Hendrik Lohse-Bossenz, University of Heidelberg, September 14, 2021.

Furtak, E.M. Supporting science teacher practice with learning progressions (Invited lecture). Australian Council for Education Research Conference, Invited by Charlotte Waters, August 19, 2021.

Furtak, E.M. Learning Progression and its Assessment (Invited lecture). Ministry of Education and Culture, Faculty of Teacher Training and Education, Sebelas Maret University, Surakata, Indonesia. Invited by Murni Ramli, May 4, 2021.

Furtak, E.M. Assessment for Curricular Efficacy (Invited keynote address). National Council of Measurement in Education Classroom Assessment Conference, Boulder, Colorado, September 2019.

Furtak, E.M. Studying Formative Assessment Tasks and Classroom Practices with Mixed Methods (3 h invited workshop). Invited by European Science Education Research Association Summer School, University of Jyväskylä, Jyväskylä, Finland, June 2018.

Furtak, E.M. Designing the Aspire Assessment System: Research-Practice Partnership for Three-Dimensional Science Learning (1 h invited lecture). Invited by Philipp Schmiemann, Interdisciplinary Colloquium for Educational Research, University of Duisburg-Essen, Essen, Germany, June 2018.

Furtak, E.M. Formative Assessment and Science Education Reform: Building a research agenda across contexts and designs (1 h invited lecture). Invited by Jonathan Osborne, Stanford Graduate School of Education, Stanford, CA, May 2018.

Furtak E.M. Approaches to the Study of Formative Assessment in Professional Development and Classroom Practice (2 h invited workshop). Invited by International Organizing Committee, Junior Researchers of the European Association for Research on Learning and Instruction, Tampere, Finland, August 2017.

Furtak, E.M. Studying Formative Assessment Tasks and Classroom Practices with Mixed Methods (3 h invited workshop). Invited by European Science Education Research Association Summer School, University of South Bohemia, Ceske Budejovice, Czech Republic, June 2017.

Furtak, E.M. Supporting Changes in Teacher Practice with A Learning Progression: Results of the Elevate Study (1 h invited lecture). Invited by the Rectorate of the University of South Bohemia, Ceske Budejovice, Czech Republic, June 2017.

Furtak, E.M. (1 h invited lecture). Invited by Katharina Kiemer, Lehrstuhl für Psychologie, Universität Augsburg, Augsburg, Germany, June 2017.

Furtak, E.M. Dilemmas of 3-Dimensional Classroom Assessment (1 h invited lecture). Invited by Alicia Alonzo, CREATE for STEM Center, Michigan State University, East Lansing, Michigan, February 2017.

Furtak, E.M. Designing and Using 3D Assessments in Elementary Classrooms (1 h invited lecture). Invited by Board of Directors for Northern Illinois Science Educators, Naperville, IL, November 2016.

Furtak, E.M. Designing and Using 3D Assessments in Middle and High School Classrooms (1 h invited lecture). Invited by Board of Directors for Northern Illinois Science Educators, Naperville, IL, November 2016.

Furtak, E.M. Connecting the Dots (or at least trying to) between Professional Development, Formative Assessment and Student Learning (1 h plenary lecture). Invited by Executive Board, European Science Education Research Association Summer School, University of South Bohemia, Ceske Budejovice, Czech Republic, August 2016.

Furtak, E.M., Kowalski, S., Taylor, J., & Martinez, A. What's Missing in Reports and Articles? Results from Meta-Analyses to Find Effect Sizes. Invited by Susan Kowalski, School Reform Center at TERC/MSPnet [Webinar], October 2015.

Furtak, E.M. Skyline Lecture: Developing Teachers' Attention to Student Thinking Through School-Based Professional Communities: Results of a Longitudinal Study (1 h invited lecture). Invited by Tina Seidel, Technische Üniversität München School of Education, Munich, Germany, November 2014.

Furtak, E.M. Formative Assessment from an International Perspective (1 h invited lecture).

Invited by Olaf Köller, Leibniz Institute for Science Education, Berlin, Germany, August 2013.

Furtak, E.M. Exploring the Role of Disciplinary Knowledge, Language, and Practices in Collaborative Formative Assessment Design (1 h invited lecture). Invited by Jonathan Shemwell, University of Maine, February 2012.

Furtak, E.M. Transforming the teaching of natural selection through a professional learning community (1 h invited lecture). Invited by Eckhard Klieme, Deutsches Institut für Internationale Pädagogische Forschung, Frankfurt, Germany, January, 2011.

Furtak, E.M. Transforming the teaching of natural selection through a teacher learning community (1 h invited seminar). Seminar for the Math and Science Signature Learning Area. Invited by Leo Bruderle, University of Colorado Denver, November 2010.

Furtak, E.M. Transforming the teaching of natural selection through a professional learning community (1 h invited lecture). Modern Biology Goes to School Symposium. Invited by Elsbeth Stern, Professor, Swiss Federal Institute of Technology, Zürich, Switzerland, June 2010.

Differentiation: Teaching in Heterogeneous Classrooms (1 h invited lecture). Invited by Peggy Bleyberg-Shor, Director, Hillel Academy, Kingston, Jamaica; hosted by Ministry of Education, October, 2009.

Formative Assessment and Student Learning: What does the research say? (1.5 h keynote address). Invited by Patricia McClure, Florida Science Academy Network Meeting, Orlando, FL, September, 2009.

Formative Assessment for Biology Teachers (2 h keynote address). Invited by Michael Dougherty, Geneticist-Education Network of Alliances Summer Institute, June, 2009.

If Formative Assessment is Such a Great Idea, Why Isn't Everyone Doing It? (1 h invited colloquium). School of Education Colloquium Series, April, 2009.

Learning Progressions for Teacher Development (1.25 h invited lecture). Invited by Alicia C. Alonzo, University of Iowa School of Education. 07S:350: Science Education Seminar: Learning Progressions, April, 2009.

Formative Assessment in the Science Classroom (1.5 h invited lecture). Invited by April Luehmann, Margaret Warner School of Education and Human Development at the University of Rochester. ED 474: Implementing Reform in Science Education, October, 2007.

GRANTS AND FELLOWSHIPS

Co-Principal Investigator: Collaborative Research: ANSWERS: The Surface Charging Observatory for Prediction, Understanding, Learning and Industry (SCOPULI), National Science Foundation, $503,919, 2022-2026.

Co-Principal Investigator: Towards a Culturally Sustaining System of Instruction and Assessment in OpenSciEd. Digital Promise, $9,000, 2022.

Co-Principal Investigator: Building the Field for Partnership Research, William and Flora Hewlett Foundation, $85,000, 2022.

Principal Investigator: Supporting Multilingual Learners in STEM Classrooms: Designing for Virtual Professional Development for Teachers, Alexander von Humboldt Foundation Alumni Fellowship, €2,290, 2022.

Co-Principal Investigator: Partnership to Strengthen Systemwide Science Education, Public Outreach and Community Engagement, University of Colorado at Boulder, $24,000, 2019-2020.

Principal Investigator: Aspire Research-Practice Partnership: Research Infrastructure for Longitudinal Tracking of Student Science Learning, Spencer Foundation, (Grant #10011767), $399,916, 2017-2020.

Principal Investigator: Aspire-II - From Teacher Task Design to Generalizable Knowledge of Student Learning: A Comprehensive Study of Learning Progression Use, National Science Foundation (Award #1551751), $1,210,217, 2016-2019.

Principal Investigator: Aspire: Formative Assessment of Scientific Practices Research-Practice Partnership, National Science Foundation (Award #1505527), $199,836, 2015-2017.

Principal Investigator: Professional Development, Teacher and Student Learning in Science Education, Alexander von Humboldt Foundation Alumni Fellowship, €6,300, 2014.

Principal Investigator: Virtual Teacher Learning Community: Proof-of-Concept Design, University of Colorado Innovative Seed Grant Program, $48,000, 2013-2015.

Co-Principal Investigator: Investigating Instructional Influences on the Productivity of Clicker Discussions, National Science Foundation (Award #1140789), $196,672, 2012-2014.

Principal Investigator: CAREER: Educative Learning Progressions as Tools for Teacher Development (ELEvATE), National Science Foundation (Award #0953375), $656,375, 2010-2017.

Principal Investigator: Professional Learning as Leadership: Building Capacity in High School Biology Teaching, Outreach Committee, Continuing Education and Professional Studies, University of Colorado at Boulder, $5,000, 2010-2011.

Principal Investigator: More Pie: Essays on Entering Academia, Spencer Foundation, $40,000, 2010-2011.

Principal Investigator: Making the Global Local: Colorado Climate Literacy for Secondary Science Teachers, Outreach Committee, Continuing Education and Professional Studies, University of Colorado at Boulder, $5,000, 2009-2010.

Co- Principal Investigator: A Circle of Life on Earth: A Tutorial Linking of Deep-Time, Geological Processes, and Phylogeny, ASC Dean's Fund for Excellence Committee, Arts and Sciences Support of Education Through Technology, $4,000, 2009-2010.

Principal Investigator: Learning Progressions as Tools for Developing Content Knowledge for Teaching, Knowles Science Teaching Foundation, Research Fellowship, $110,000, 2007-2010.

Principal Investigator: Reforming Teaching and Learning of Science and Mathematics in Germany: A dual research affiliation with educational leaders in Kiel and Berlin, Alexander von Humboldt Foundation, German Chancellor Scholarship, 2006-2007.

Principal Investigator: Discussions in Guided Science Inquiry Teaching: A Study of Four Middle School Physical Science Classrooms, Stanford University, Small and Competitive Research Training Grants, $6,500, 2005.

PROFESSIONAL SERVICE

Co-Director	*Sandra K. Abell Institute for Doctoral Students, National Association of Research in Science Teaching (2015)*
Board Member	*BSCS Science Learning, (2021- present)*
Committee Member	*Updating America's Lab Report, Board on Science Education, National Academies of Sciences (2017-2018)*
Coach	*National Center for Faculty Development and Diversity (2013-present); European Science Education Research Association Doctoral Summer School (2016, nominated by National Association of Research on Science Teaching; 2017, nominated by Executive Board of the European Science Education Research Association)*
Editorial Board Member	*Educational Assessment* (2010 - 2018) *Journal of Research in Science Teaching* (2009-2012)
Ad Hoc Reviewer	*Cognition and Instruction* *Educational Researcher* *International Journal of Science Education* *Journal of the Learning Sciences* *Journal of Teacher Education* *Learning and Instruction* *Science* *Science Education* *Teaching and Teacher Education*
Advisory Board Member	*Abstraction in Modeling through synthesis (AIMS) to Learn the Nature of Models (2017-present)* *Advancing Coherent and Equitable Systems of Science Education (2017-present)* *Boosting Data Science Teaching and Learning in STEM (2021-present)*

Delphi Panel on Core Science Teaching Practices, National Science Foundation (2016-present)
Developing Science Assessments for Language Diversity in Early Elementary Classrooms (2022-present)
Diagnosing the Argumentation Levels of Groups (DiALoG): A Digital Formative Assessment Tool to Support Oral Argumentation in Middle School Science Classrooms (2018-present)
Empowering Teachers to See and Support Student Use of Crosscutting Concepts in the Life Sciences (2021-present)
IPT PRACTISE Professional Learning Model, Lawrence Hall of Science, (2018-present)
Formative Assessment Synthesis Project, McReL (2014-2015)
Research + Practice Collaboratory, National Science Foundation (2014-present)
PATL Project, Pearson Education (2014-2015)
Lens on Climate Change, National Science Foundation (2016-present)
Redesigning a Learning Progression to Build Upon Students' Intuitive Ideas about Motion and Support Teachers' Formative Assessment Practices, National Science Foundation (2017-present)
Supporting Instructional Decision Making: The Potential of Automatically Scored Three-dimensional Assessment (PASTA; 2021-2025)
Science Assessments for Language Diversity in Early Elementary Classrooms (SALDEE; 2022-2026)

Proposal Reviewer

Israeli Science Foundation *(2016, 2017)*
National Science Foundation, Directorate of Education and Human Resources *(2009-present)*
International Conference of the Learning Sciences *(2014, 2016)*
American Educational Research Association *(2006 – present)*
National Association of Research on Science Teaching
William T. Grant Foundation *(2016, 2017,2019)*

SCHOOL AND DEPARTMENTAL SERVICE

Chair	*Curriculum and Instruction: Mathematics and Science Program Area (2017 -2018)* *CU Teach STEM Teacher Preparation Program (2017 -2018)*
Member	*Space Committee (2015-2017)* *Teacher Education Faculty (2008-present)*
Chair	*Elementary Science Education Search Committee (2015)*
Co-Chair	*Elementary Science Education Search Committee (2012)*
Elected Member	*Salary Committee (2008-2010; 2016-2018)*
Member	*Research and Evaluation Methodology Search Committee (2009)* *Elementary Science Education Search Committee (2010, 2011)*

UNIVERSITY SERVICE

Member	*Graduate School Strategic Visioning Committee (2019-2020)*
Voting Member	*Academic Review and Planning Advisory Committee (2016-2018)*
Member	*Executive Advisory Committee, Dean of the Graduate School (2016-2017)*
Proposal Reviewer	*Provost's Faculty Achievement Award (2015)*
Proposal Reviewer	*Innovative Seed Grant Program (2015)*
Search Committee Member	*Science Discovery Director, Continuing Education (2010)*