

# BROOKE A. WHITWORTH

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## EDUCATION

**Ph.D.**, Science Education, 2011-2014

University of Virginia, Curry School of Education, Charlottesville, VA

Dissertation: Exploring the critical role of a district science coordinator

Advisors: Randy L. Bell, Jennifer L. Chiu

Additional Committee Members: Carol A. Tomlinson, Jennifer L. Maeng

**M.A.Ed.**, Secondary Education, 2002

Wake Forest University, Master Teacher Fellow Program, Winston-Salem, NC

Professional teaching license (Chemistry 9-12, Japanese), State of North Carolina (2002-2022)

**B.A.**, Chemistry, 2001

William Jewell College, Liberty, MO

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## AWARDS & HONORS

- **Research Grant Fellow**, *Clemson University*, 2021
  - **Outstanding College Science Teacher of the Year**, *Mississippi Science Teachers Association*, 2019
  - **Finalist for Outstanding Researcher of the Year**, *University of Mississippi*, 2019
  - **Conference Paper Award V: Implications of Research for Educational Practice**, *Association of Science Teacher Education*, 2018
  - **Top 1% of Peer Reviewers – Social Sciences**, *Publons Global Peer Review*, 2018
  - **Finalist for College of Engineering Forestry & Natural Sciences Professor of the Year**, *Northern Arizona University*, 2017
  - **Curry Trustees Fellowship**, *University of Virginia*, 2013
  - **Sandra K. Abell Institute Scholar**, *National Association for Research in Science Teaching*, 2013
  - **Summer Curriculum Fellowship**, *Punahou School*, 2010
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## PROFESSIONAL EXPERIENCE

**Associate Professor of Science Education**, 2020-Present

Clemson University, Clemson, SC

- Curriculum and Instruction Doctoral Program Coordinator
- Instruct undergraduate and graduate courses
- Supervise, mentor, and evaluate pre-service and in-service science teachers
- Supervise graduate research assistants
- Develop and conduct lines of scholarly research

**Assistant Professor of Science Education**, 2017-2020

The University of Mississippi, Oxford, MS

- Secondary Science Program Coordinator
- Instructed undergraduate and graduate courses
- Supervised, mentored, and evaluated pre-service and in-service science teachers
- Supervised graduate research assistants and led research team

- Developed and conducted lines of scholarly research

**Assistant Professor of Science Education, 2014-2017**

Northern Arizona University, Flagstaff, AZ

- Instructed undergraduate and graduate courses
- Supervised, mentored, and evaluated pre-service and in-service science and math teachers
- Developed and conducted lines of scholarly research
- Advised National and Arizona Science Teacher Association Student Chapter

**Research Graduate Assistant, 2011-2014**

University of Virginia, Charlottesville, VA

- Researched and evaluated components of the *Virginia Initiative for Science Teaching and Achievement* (VISTA) grant (\$34 million U.S. Department of Education I3 grant)
- Conducted interviews, observations, and surveys and analyzed these data
- Led group training for coaches and beginning researchers on the VISTA grant
- Wrote and edited manuscripts for publication on the VISTA Grant

**University Supervisor, 2011-2013**

University of Virginia, Charlottesville, VA

- Supervised, mentored, and evaluated pre-service science teachers
- Assisted in instruction of undergraduate and graduate courses

**Science & Mathematics Teacher, 2008-2011**

Punahou School, Honolulu, HI

- Taught courses including: physics, honors chemistry, chemistry and algebra to a diverse ethnic and academic student population
- Taught summer school courses including: honors chemistry and physics
- Developed and redesigned the physics curriculum
- Awarded Summer Curriculum Fellowship to develop kinesthetic labs for physics
- Supported school community by coaching cheerleading and assisting with YoungLife

**Science Teacher, 2002-2008**

University North Carolina School of the Arts, Winston-Salem, NC

- Taught various high school courses including: chemistry, physics, physical science and yearbook to young artists pursuing careers in the arts
- Appointed Science Department Chair, Chair of Science Search Committee, and to the Teaching & Learning SACS Reaccreditation Team
- Contributed to the school community by serving on the Wellness Committee, Safety Committee, Faculty Welfare Committee, various Search Committees, and Prom Committee

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**CONSULTING****Evaluation Consultant, 2020**

ESTITCH Project, Utah State University, Logan, UT

**Advisory Board Member, 2019-2022**

Making Engineering Real (ME Real), National Science Foundation ITEST Grant, University of Virginia, Charlottesville, VA

**Evaluation Consultant**, 2018-2019  
GEMS Project, University of Georgia, Athens, GA

**Evaluation Consultant**, 2018  
Rust College, Holly Springs, MS

**Arizona Science Standards Revision Committee**, 2017  
Department of Education, Phoenix, AZ

**Presidential Awards for Excellence in Mathematics and Science Teaching Selection Committee**,  
2017  
Department of Education, Phoenix, AZ

**STEM Instead Director**, 2015  
Waimea Middle School, Waimea, HI

**Advisory Board Member**, 2015  
Project SOSA, University of Connecticut, Storrs, CT

**Research Consultant**, 2014-2015  
VISTA Grant, University of Virginia, Charlottesville, VA

**Subject Matter Expert for Discovery TechBooks**, 2012  
Paladin Media Consulting, Charlottesville, VA

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## PEER REVIEWED PUBLICATIONS

Henning, A.\*, **Whitworth, B. A.**, & Huff Macpherson, A. (2020, February). Comics in the classroom: What's at the center of the solar system. *The Science Teacher*, 87(6), 37-43.

Maeng, J.L., **Whitworth, B. A.**, Bell, R.L., & Sterling, D. (2020). The effect of professional development on elementary science teachers' understanding and classroom implementation of reform-based science instruction. *Science Education*, 104, 326-353. DOI: 10.1002/sce.21562

Moore, V., Prewitt, E., Carpenter-McCullough, A., & **Whitworth, B. A.** (2020, January). Teamwork makes the dream work: Using Team-Based Learning in the science classroom. *Journal of College Science Teaching*, 49(3), 38-46.

**Whitworth, B. A.**, Rubino-Hare, L., Bloom, N. E., Walker, M. C.\*, & Arendt, K.\* (2020). Scaling professional development: Preparing professional development providers to lead Power of Data Teacher Workshops. *International Journal of Science Education*, 42, 1-24. DOI: 10.1080/09500693.2019.1699975

Biggers, M., Miller, A. R., Zangori, L., & **Whitworth, B. A.** (2019). (Mis)alignments in mentorship: Exploring challenges to preservice science teacher preparation. *Journal of Science Teacher Education*, 30, 344-356. DOI: 10.1080/1046560X.2018.1562812

- Hedman, J. O.\* & **Whitworth, B. A.** (March, 2019). The science project portfolio: An approach to improve experiences and outcomes for science fair stakeholders. *Science Scope*, 42(7), 46-53.
- Luft, J. A. & **Whitworth, B. A.** (January, 2019). Reaching for the future: Building a professional trajectory. *The Science Teacher*, 86(5), 34-39.
- Nolan, E.\*, **Whitworth, B. A.**, & Rubino-Hare, L. (November/December, 2019). A lesson in geospatial inquiry. *The Science Teacher*, 87(4), 26-33.
- Simpson, L.\* & **Whitworth, B. A.** (September, 2019). Modeling for ecological engineering. *The Science Teacher*, 87(2), 31-39.
- Westman, B.\* & **Whitworth, B. A.** (March, 2019). Fraught with friction: Supporting student thinking using a PEOE strategy. *Science & Children*, 56(7), 44-49.
- Wheeler, L. B., Navy, S. L., Maeng, J.L., & **Whitworth, B. A.** (2019). Development and validation of the Classroom Observation Protocol for Engineering Design (COPED). *Journal of Research in Science Teaching*, 56, 1285-1305. DOI: 10.1002/tea.21557
- Luft, J. A., **Whitworth, B. A.**, Berry, A., Kind, V., & Navy, S. L. (2018). Science Education Trajectories: Charting the course for teachers, educators, researchers, and policy makers. *Journal of Science Teacher Education*, 30, 63-79. DOI: 10.1080/1046560X.2018.1535226
- Maeng, J. L., Bell, R. L., St. Clair, T., Gonczi, A. L., & **Whitworth, B. A.** (2018). Supporting elementary teachers' understandings and enactment of nature of science instruction: A randomized controlled trial. *International Journal of Science Education*, 40, 2245-2264. DOI:10.1080/09500693.2018.1528643.
- Rains, S. L.\* & **Whitworth, B. A.** (2018). A better way of farming: Building an aquaponics system for the classroom. *The Science Teacher*, 86(3), 40-45.
- Whitworth, B. A.**, Maeng, J. L., & Bell, R. L. (2018). Exploring practices of science coordinators participating in targeted professional development. *Science Education*, 102, 474-497. DOI: 10.1002/sce.21337
- Beyea, S. M.\* & **Whitworth, B. A.** (2017). Out in the field: Learning about plant diversity. *Science Scope*, 41(3), 50-58.
- Maeng, J. L., **Whitworth, B. A.**, Wheeler, L. B., Gonczi, A. L., & Dubois, S. L. (2017). Elementary science teachers' integration of engineering design into science instruction: Results from a randomized controlled trial. *International Journal of Science Education*, 39, 1529-1548. DOI: 10.1080/09500693.2017.1340688
- Wheeler, L. B., Maeng, J. L., & **Whitworth, B. A.** (2017). Characterizing teaching assistants' knowledge and beliefs following professional development activities within an inquiry-based general chemistry context. *The Journal of Chemical Education*, 94(1), 19-28. DOI: 10.1021/acs.jchemed.6b00373

- Whitworth, B. A.**, Bell, R. L., Maeng, J. L., & Gonczi, A. L. (2017). Supporting the supporters: Professional development for science coordinators. *Journal of Science Teacher Education*, 28, 699-723. DOI: 10.1080/1046560X.2017.1404814
- Whitworth, B. A.**, Maeng, J. L., Wheeler, L. B., & Chiu, J. L. (2017). Investigating the role of a district science coordinator. *Journal of Research in Science Teaching*, 54, 914-936. DOI: 10.1002/tea.21391
- Whitworth, B. A.** & Wheeler, L. B. (2017). Is it engineering or not? *The Science Teacher*, 84(5), 25-29.
- Gonczi, A. G., Maeng, J. L., Bell, R. L., & **Whitworth, B. A.** (2016). Situating computer simulation professional development: Does it promote inquiry based simulation use? *Computers in the Schools*, 33, 133-152. DOI: 10.1080/07380569.2016.1205351
- Rubino-Hare, L. A., **Whitworth, B. A.**, Bloom, N. E., Claesgens, J. M., Fredrickson, K. M., Henderson-Dahms, C., & Sample, J. C. (2016). Persistent teaching practices after geospatial technology professional development. *Contemporary Issues in Technology and Teacher Education*, 16(3), 208-285. Retrieved from: <http://www.citejournal.org/volume-16/issue-3-16/science/persistent-teaching-practices-after-geospatial-technology-professional-development>
- Whitworth, B. A.**, Beyea, S. M.\*, & Purell, M. (2016, Winter). STEM Learning in Your Own Backyard: Designing a place-based middle school summer program. *Green Teacher*, (108), 21-25. Retrieved from: <http://greenteacher.com/stem-learning-in-your-own-backyard/>
- Wheeler, L. B., Maeng, J. L., & **Whitworth, B. A.** (2015). Teaching assistants perceptions of a training to support an inquiry-based general chemistry laboratory course. *Chemical Education Research and Practice*, 16, 824-842. DOI: 10.1039/c5rp00104h
- Whitworth, B. A.** & Chiu, J. L. (2015). Professional development and teacher change: The missing leadership link. *Journal of Science Teacher Education*, 26, 121-137. DOI: 10.1007/s10972-014-9411-2
- Wheeler, L. B., Bell, R. L., **Whitworth, B. A.**, & Maeng, J. L. (2014). The science ELF: Assessing the Enquiry Levels Framework as a heuristic for professional development. *International Journal of Science Education*, 37, 55-81. DOI: 10.1080/09500693.2014.961182
- Wheeler, L. B., **Whitworth, B. A.**, & Gonczi, A. L. (2014). Engineering design challenge. *The Science Teacher*, 81(9), 30-36. DOI: 10.2505/4/tst14\_081\_09\_30
- Whitworth, B. A.**, Chiu, J. L., & Bell, R. L. (2014). Kinesthetic investigations in the physics classroom. *The Physics Teacher*, 52, 616-618. DOI: 10.1119/1.4862112
- Whitworth, B. A.** & Bell, R. L. (2013). Physics portfolios: A picture of student understanding. *The Science Teacher*, 80(8), 38-43. DOI: 10.2505/4/tst13\_080\_08\_38
- Whitworth, B. A.** & Chiu, J. L. (2013). Pre-Service teachers' use of visualizations in the science classroom: A case study. *Journal of Virginia Science Education*, 5(1), 16-33. Retrieved from: [http://www.vast.org/docs/Journal9\\_FullVersion-1.pdf](http://www.vast.org/docs/Journal9_FullVersion-1.pdf)

**Whitworth, B. A.**, Maeng, J. L., & Bell, R. L. (2013). Differentiating inquiry. *Science Scope*, 37(2), 10-17. DOI: 10.2505/4/ss13\_037\_02\_10

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### NON PEER REVIEWED PUBLICATIONS

**Whitworth, B. A.** (2014). *Exploring the critical role of a district science coordinator*. (Doctoral Dissertation). University of Virginia: Charlottesville, Virginia.

**Whitworth, B. A.** (2001). Team learning: A pilot study. In Leah P. McCoy (Ed), *Studies in teaching: 2001 research digest* (p. 116-120). Winston-Salem, NC: Wake Forest University.

**Whitworth, B. A.** (2001). The world is my home. In Graduating Pryor Leadership Fellows of William Jewell College (Ed), *True North: Insights on Leadership for College Students* (p. 38-40). Liberty, MO: William Jewell College.

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### PUBLICATIONS ACCEPTED

Lytal, L. C.\*, **Whitworth, B. A.**, & Morton, G. (2020, Accepted). No bones about art. *Science Scope*.

Mosely, J.J.\* & **Whitworth, B. A.** (2020, Accepted). The "magic" of density: A unique take on the 5E lesson. *Science Scope*.

Rock, C. A.\* & **Whitworth, B. A.** (2020, Accepted). Airbags as real-life applications for science. *The Science Teacher*.

Todd, L. C.\* & **Whitworth, B. A.** (2020, Accepted; Slated for 2020, July/August). Going viral: Using technology in the classroom to show the spreading of viruses. *Science Scope*.

**Whitworth, B. A.**, Wenner, J., & Tubin, D. (2020, Accepted). Science teacher leadership: The current landscape and paths forward. In *The handbook of research on science teacher education*.

**Whitworth, B. A.**, & Snead, A. (2019, Accepted). Powerful Practices for the Differentiated Science Classroom: Tools to Support All Learners. Alexandria, VA: NSTA Press.

Wilson, S.\* & **Whitworth, B. A.** (2019, Accepted; Slated for 2020, November). The cardiovascular system: Do not disturb the flow. *The Science Teacher*.

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### PUBLICATIONS IN REVIEW

Jackson, W., Simpson, L. A.\*, **Whitworth, B. A.** (Revise & Resubmit). Talking is thinking: Supporting student sense-making through discourse and assessment.

Kulkarni, S.\* & **Whitworth, B. A.** (Submitted). Using podcasts in science classrooms: Storytelling for all ears.

Miller, A. R., **Whitworth, B. A.**, & Zangori, L. (Revise & Resubmit). Mind the (mentoring) gap: Exploring challenges to preservice and cooperating science teacher alignment with respect to teaching and standards-based reform.

Simpson, L. A.\* & **Whitworth, B. A.** (Revise & Resubmit). Science portfolios: Embedding the nature of science.

**Whitworth, B. A.**, Maeng, J. L., Gonczi, A. L., & Bell, R. L. (Revise & Resubmit). Supports and barriers encountered by science coordinators.

**Whitworth, B. A.**, Rubino-Hare, L., Bloom, N. E., & Nolan, E.\* (Submitted). Scaling professional development: Measures of implementation.

**Whitworth, B. A.**, Rubino-Hare, L., Boateng, F., Nolan, E.\*, Bloom, N., & Manone, M. (Submitted). Examining professional learning and development designed to support Geospatial Inquiry and Geospatial Technology skills.

**Whitworth, B. A.**, Simpson, L. A.\*, Jackosn, W., James, J. & Steimle, A. (Submitted). Utilizing physical science Educative Curriculum Materials to impact Preservice Elementary Teachers.

**Whitworth, B. A.**, Wilson, S.\*, & Watson, S.\* (Revise & Resubmit). Examining teacher leadership as a model for improvement in science education.

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## NATIONAL AND INTERNATIONAL PRESENTATIONS

**Whitworth, B. A.** & Simpson, L. A.\* (2020, Submitted). *Utilizing physical science Educative Curriculum Materials and situated learning to impact Preservice Elementary Teachers*. A paper for the annual meeting of the American Educational Research Association, Virtual.

**Whitworth, B. A.**, Rubino-Hare, L., Hamlin, A. Bloom, N., Boateng, F., & Nolan, E.\*. (2020, Submitted). *Classroom implementation of geospatial inquiry lessons*. A paper for the annual meeting the National Association of Research in Science Teaching, Orlando, FL.

**Whitworth, B. A.**, Simpson, L.\*, Jackson, W., James, J. & Steimle, A. (2020, Submitted). *Everything is connected: Building preservice elementary teachers' content knowledge through educative curriculum materials*. A poster for the annual meeting the National Association of Research in Science Teaching, Orlando, FL.

**Whitworth, B. A.**, Simpson, L.\*, Jackson, W., James, J. & Steimle, A. (2020, Accepted). *Impacting higher education faculty's teaching practices in the physical sciences*. A poster for the annual meeting the Association of Science Teacher Education, Salt Lake City, UT.

**Whitworth, B. A.**, Rubino-Hare, L., Bloom, N., Nolan, E.\*, Boateng, F., & Manone, M. (2020, Accepted). *Designing Geospatial Inquiry and Geospatial Technology skill professional learning and development for secondary teachers*. A paper for the annual meeting of the Association of Science Teacher Education, Salt Lake City, UT.

- Whitworth, B. A.**, Luft, J.A., Watson, S.\*, Huang, Y., Singh, H., & Worth, E. (2020, Submitted). *A professional development module focused on teaching science equitably*. A presentation for the annual meeting of the National Science Teaching Association, Chicago, IL.
- Rubino-Hare, L., **Whitworth, B.**, Bloom, N., & Manone, M. (2020, July). *The Power of Data: Helping teachers enhance lessons with Geospatial Inquiry*. A presentation for the annual Esri Education User Conference, San Diego, CA. (Cancelled)
- Whitworth, B. A.**, Simpson, L.\*, & Wilson, S.\* (2019, April). *Strategies for Differentiating Science Practices*. A presentation for the National meeting of the National Science Teachers Association, Boston, MA. (Cancelled)
- Watson, S.\*, Huang, Y., Singh, H., Ozen-Tasdemir, H., Worth, E., McNeil, L., Luft, J.A., & **Whitworth, B. A.** (2020, March). *Practices, attributes, and knowledge of district science coordinators: Building a trajectory*. A paper for the annual meeting of the National Association of Research in Science Teaching, Portland, OR. (Cancelled)
- Whitworth, B. A.**, Simpson, L.\*, Jackson, W., James, J. & Steimle, A. (2019, March). *Impacting preservice elementary teachers through physical science educative curriculum materials*. A poster for the annual meeting the National Association of Research in Science Teaching, Portland, OR. (Cancelled)
- Whitworth, B. A.**, Nolan, E.\*, Rubino-Hare, L., Manone, M., & Bloom, N. (2019, March). *Examining professional development designed to support geospatial inquiry implementation*. A paper for the annual meeting the National Association of Research in Science Teaching, Portland, OR. (Cancelled)
- Wilson, S.\*, **Whitworth, B. A.** & Watson, S.\* (2019, March). *Examining teacher leadership as a model for improvement in science education*. A round table for the annual meeting the National Association of Research in Science Teaching, Portland, OR. (Cancelled)
- Nolan, E.\*, **Whitworth, B. A.**, Manone, M., Rubino-Hare, L., & Bloom, N., (2020, January). *Exploring how the design of professional development supports geospatial inquiry implementation in the classroom*. A poster for the Association of Science Teacher Education, San Antonio, TX.
- Whitworth, B. A.**, Simpson, L.\*, Jackson, W., James, J. & Steimle, A. (2020, January). *Designing physical science Educative Curriculum Materials for preservice elementary teachers to impact attitudes toward science*. A poster for the Association of Science Teacher Education, San Antonio, TX.
- Rubino-Hare, L., Bloom, N.E., Nolan, E., & **Whitworth, B. A.** (2019, December). *Empowering Secondary Teachers to Enhance Instruction through the Power of Data and Geospatial Inquiry*. A paper for the annual meeting of American Geophysical Union, San Francisco, CA.
- Platt, S. & **Whitworth, B. A.** (2019, June). *Examining pre-service teachers' interest, attitudes, and technology integration with makerspaces*. A paper for the annual National meeting of the International Society for Technology in Education, Philadelphia, PA.



- Lederman, J., **Whitworth, B. A.**, Bartels, S., Miller, A., Holliday, G., & Peel, A. (2019, April). *Professional citizenship: Lifetime commitments and rewards*. A symposium for the annual meeting of National Association of Research in Science Teaching, Baltimore, MD.
- Manone, M., Rubino-Hare, L., **Whitworth, B. A.**, Nolan, E.\* & Bloom, N., (2019, April). Power of Data Project: Improving teaching and learning using data enhanced geospatial inquiry. A poster for the National meeting of the American Association of Geographers, Washington, DC.
- Wheeler, L., Navy, S., Maeng, J.L., & **Whitworth, B. A.** (2019, April). *Classroom Observation Protocol for Engineering Design (COPED): Instrument development, validation, and implications for use*. A paper presented at the annual meeting of National Association of Research in Science Teaching, Baltimore, MD.
- Maeng, J. L., & **Whitworth, B. A.** (2019, April). *Debunking classroom myths: Learning styles edition*. A presentation for the National meeting of the National Science Teachers Association, St. Louis, MO.
- Whitworth, B. A.** & Maeng, J. L. (2019, April). *Is it engineering or not?* A presentation for the National meeting of the National Science Teachers Association, St. Louis, MO.
- Whitworth, B. A.**, Luft, J. A., & Maeng, J. L. (2019, April). *Growing as a teacher: What do I want to be when I grow up?* A presentation for the National meeting of the National Science Teachers Association, St. Louis, MO.
- Whitworth, B. A.**, Miller, A. & Mensah, F.. (2019, April). *Early Career Faculty Forum*. A forum hosted for the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Rubino-Hare, L., Bloom, N. & **Whitworth, B. A.** (2019). Implications from a Scale Up of Geospatial Technology Professional Development Program for Secondary Teachers. In K. Graziano (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1673-1678). Las Vegas, NV, United States: Association for the Advancement of Computing in Education (AACE). Retrieved June 4, 2019 from <https://www.learntechlib.org/primary/p/207868/>.
- Riley, A. R., **Whitworth, B. A.**, Zangori, L, Biggers, M., & Walsh, M. D.\* (2019, January). *Exploring (mis)alignment in inservice and preservice science teacher mentoring relationships with respect to standards-based reform*. A paper for the annual meeting of the Association of Science Teacher Education, Savannah, GA.
- Bloom, N. E., Rubino-Hare, L., & **Whitworth, B. A.** (2018, August). *Findings from a scale-up of geospatial technology-integrated professional development*. A paper for the annual meeting of the National Council for Geographic Education at the International Geographical Union Regional Conference, Quebec City, Canada.
- Miller, A. R., Zangori, L., **Whitworth, B. A.**, & Biggers, M. (2018, March). *Mind the gap: Exploring (mis)alignment in inservice and preservice science teacher mentoring relationships*. A paper for the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.

- Whitworth, B. A.** & Martin, S. (2018, March). *Early Career Faculty Forum*. A forum hosted for the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Luft, J. A. & **Whitworth, B. A.** (2018, January). *Supporting teacher development: Science teacher trajectories*. A paper for the annual meeting of the Association of Science Teacher Education, Baltimore, MD.
- Maeng, J., Bell, R.L., St. Clair, T., Gonczi, A.L., & **Whitworth, B. A.** (2018, January). *Elementary Teachers' Classroom Nature of Science Instruction following PD: Results of a RCT*. A paper for the annual meeting of Association for Science Teacher Education, Baltimore, MD.
- Wheeler, L.B., Navy, S., Maeng, J.L., & **Whitworth, B. A.** (2018, January). *Development and Validation of the Classroom Observation Protocol for Engineering Design (COPED)*. A paper for the annual meeting of the Association for Science Teacher Education, Baltimore, MD.
- Whitworth, B. A.**, Bloom, N. E., Walker, M. C.\*, & Rubino-Hare, L. (2018, January). *Training the trainers: Designing the Power of Data Facilitation Academies*. A poster for the annual meeting of the Association of Science Teacher Education, Baltimore, MD.
- Rubino-Hare, L., Bloom, N., & **Whitworth, B. A.** (2017, July). *Using the Power of Data to increase student engagement with geospatial technology and careers*. A poster for the annual meeting of the International Cartographic Conference, Washington, D.C.
- Whitworth, B. A.** (2017, April). *Early Career Faculty Forum*. A forum hosted for the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Whitworth, B. A.**, Bloom, N. E., Walker, M. C.\* & Rubino-Hare, L. A. (2017, April). *Power of Data Facilitation Academy: Designing facilitator professional development*. A paper for the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Whitworth, B. A.**, Meredith, J. & Hutter, A. (2017, April). *Engineering practices in the life sciences*. A presentation for the National meeting of the National Science Teachers Association, Los Angeles, CA.
- Whitworth, B. A.**, Luft, J. A., Kind, V., Berry, A., & Dubois, S. L. (2017, March). *What can I do and how do I get there? Trajectories of science teacher learning*. A presentation for the National meeting of the National Science Teachers Association, Los Angeles, CA.
- Berry, A., Luft, J. A., **Whitworth, B. A.**, Dubois, S. L., & Kind, V. (2016, June). *From carnival to coherence: Conceptualizing trajectories of science teacher learning*. A paper for the annual meeting of the Australasian Science Education Research Association, Canberra, Australia.
- Whitworth, B. A.**, Maeng, J. L., Wheeler, L. B., & Chiu, J. L. (2016, April). *A foundational study of the district science coordinators' role in supporting science instruction*. A paper for the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

\*Indicates a current or former student.

- Whitworth, B. A.** & Martin, S. (2016, April). *Early Career Faculty Forum*. A forum hosted for the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Maeng, J. L., Bell, R. L., St. Clair, T., **Whitworth, B. A.**, & Gonczi, A. L. (2016, April). *From professional development to practice: Elementary teachers' understandings and enactment of nature of science instruction*. A paper for the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Luft, J. A., **Whitworth, B. A.**, Dubois, S. L., Berry, A., & Kind, V. (2016, April). *A trajectory of science teacher learning: Charting the course for policy makers, researchers, educators, and teachers*. A paper for the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Whitworth, B. A.**, Maeng, J. L., & Chiu, J. L. (2016, April). *Investigating the roles and responsibilities of district science coordinators*. A paper for the annual meeting of the American Education Research Association, Washington, DC.
- Whitworth, B. A.** & Maeng, J. L. (2016, April). *Exploring engineering practices*. A presentation for the annual meeting of the National Science Teachers Association, Nashville, TN.
- Maeng, J. L. & **Whitworth, B. A.** (2016, April). *Differentiating scientific practices through inquiry-based instruction*. A presentation for the annual meeting of the National Science Teachers Association, Nashville, TN.
- Whitworth, B. A.**, Edmondson, E., & Mannarino, A. (2016, March). *Creating instructional programs that engage students: The VISTA way*. A presentation for the annual meeting of the National Science Educational Leaders Association, Nashville, TN.
- Whitworth, B. A.**, Wheeler, L. B., Maeng, J. L. & Bell, R. L. (2016, January). *The relationship between science coordinator professional development and teacher change*. A paper for the annual meeting of the Association for Science Teacher Education, Reno, NV.
- Whitworth, B. A.** (2015, October). *Cooking up a research agenda: What comes next?* A paper for the annual meeting of the Science Education at the Crossroads Conference, Cleveland, OH.
- Bell, R. L., Maeng, J. L., Konold, T., & **Whitworth, B. A.** (2015, April). *Professional development to support elementary teachers' understanding and implementation of reforms-based science: Randomized controlled trial*. A paper for the annual meeting of the American Education Research Association, Chicago, IL.
- Wright, C. & **Whitworth, B. A.** (2015, April). *Early Career Faculty Forum*. A forum hosted for the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Bell, R. L., Maeng, J. L., Konold, T., & **Whitworth, B. A.** (2015, April). *The effect of professional development of elementary teachers' understanding and implementation of reforms-based science instruction*. A paper for the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.

- Wheeler, L. B., Maeng, J. L., & **Whitworth, B. A.** (2015, April). *Assessing a professional development for teaching assistants in a Project-Based Guided Inquiry General Chemistry lab*. A paper for the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Whitworth, B. A.**, Maeng, J. L., & Bell, R. L. (2015, April). *An exploration of science coordinator practices following professional development*. A paper for the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Maeng, J. L., Bell, R. L., & **Whitworth, B. A.** (2015, January). *The effect of professional development on elementary science teachers' understanding and classroom implementation of reforms-based science instruction: A randomized controlled trial*. A paper for the annual meeting of the Association for Science Teacher Education, Portland, OR.
- Whitworth, B. A.**, Maeng, J. L., Wheeler, L. B., & Chiu, J. L. (2015, January). *Critical factors impacting the role of a district science coordinator*. A paper for the annual meeting of the Association for Science Teacher Education, Portland, OR.
- Wheeler, L. B., Maeng, J. L., & **Whitworth, B. A.** (2014, July). *Teaching assistant role and perceptions: Assessment of professional development to support Project-Based, Guided Inquiry approach in General Chemistry labs*. A presentation for the IUPAC International Conference on Chemistry Education, Toronto, Canada.
- Whitworth, B. A.**, Maeng, J. L., Wheeler, L. B., & Chiu, J. L. (2014, April). *Understanding the critical role of a district science coordinator*. A poster for the annual meeting of National Association of Research in Science Teaching, Pittsburg, PA.
- Gonczi, A. L., Bell, R. L., & **Whitworth, B. A.** (2014, January). *Analysis of two computer simulation professional development models*. A paper for the annual meeting of the Association of Science Teacher Educators, San Antonio, TX.
- Whitworth, B. A.**, Maeng, J. L., Bell, R. L., & Gonczi, A. L. (2013, April). *Supporting the supporters: A case study of professional development for science coordinators*. A poster for the annual meeting of the National Association of Research in Science Teaching, San Juan, PR.
- Wheeler, L. B., Maeng, J. L., Bell, R. L., & **Whitworth, B. A.** (2013, April). *Understanding and scaffolding inquiry: A tale of three teachers*. A poster for the annual meeting of National Association of Research in Science Teaching, San Juan, PR.
- Whitworth, B. A.**, Maeng, J. L., & Gonczi, A. L. (2013, January). *Science coordinators experiences with VISTA professional development*. A paper for the annual meeting of the Association of Science Teacher Educators, Charleston, SC.
- Wheeler, L. B., Bell, R. L., & **Whitworth, B. A.** (2013, January). *Three teachers' implementation of inquiry in the secondary science classroom*. A paper for the annual meeting of the Association of Science Teacher Educators, Charleston, SC.
- Maeng, J. L., Bell, R. L., & **Whitworth, B. A.** (2012, March). *Alternatives to dissection in the digital age*. A paper for the annual meeting of the National Science Teachers Association, Indianapolis, IN.

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## REGIONAL, STATE, AND LOCAL PRESENTATIONS

Watson, S.A.\*, Huang, Y., Singh, H., Ozen-Tasdemir, H., Worth, E., McNeil, L., McCann, S., Tran, H. H., Luft, J. A., **Whitworth, B. A.** (2020, October). A model of district science coordinator knowledge. A paper for the annual meeting of the Southeastern Association for Science Teacher Education, Dahlonega, GA.

**Whitworth, B. A.**, Simpson, L.\*, Jackson, W., James, J. & Steimle, A. (2020, October). Impacting the practices of higher education faculty in the physical sciences. A presentation for the annual meeting of the Southeastern Association for Science Teacher Education, Dahlonega, GA.

**Whitworth, B. A.**, Simpson, L.\*, Jackson, W., James, J. & Steimle, A. (2020, April). Utilizing physical science educative curriculum materials to impact preservice elementary teachers. A poster for the annual meeting of the Scholarship of Teaching & Learning Conference, Oxford, Mississippi. (Cancelled)

Simpson, L.\*, **Whitworth, B. A.**, Jackson, W., James, J. & Steimle, A. (2020, March). Designing educative curriculum materials for physical science to impact preservice elementary teachers. A poster for the annual meeting of the Graduate Student Council Research Symposium, Oxford, Mississippi. (Cancelled)

**Whitworth, B. A.** (2020, February). *Science fair portfolios: Assessing students in different ways.* A presentation for the regional meeting of the Mississippi Science Teachers Association, Oxford, MS.

Simpson, L.\*, Watson, S.\*, & **Whitworth, B. A.** (2019, October). *Differentiation strategies for science practices.* A presentation presented at the annual meeting of the Mississippi Science Teachers Association, Biloxi, MS.

Watson, S.\*, Comstock, N.\*, & **Whitworth, B. A.** (2019, October). *Backyard Ecology: Student created google tours.* A presentation presented at the annual meeting of the Mississippi Science Teachers Association, Biloxi, MS.

**Whitworth, B. A.**, Wilson, S.\*, & Simpson, L.\* (2019, October). *What do you want to be when you grow up?* A presentation presented at the annual meeting of the Mississippi Science Teachers Association, Biloxi, MS.

Wilson, S.\*, Comstock, N.\*, & **Whitworth, B. A.** (2019, October). *Patterns and creativity: Exploring the Nature of Science.* A presentation presented at the annual meeting of the Mississippi Science Teachers Association, Biloxi, MS.

**Whitworth, B. A.** & Wilson, S.\* (2019, January). *Understanding Nature of Science.* A presentation presented at the annual teachers conference of the NASA/Mississippi Space Grant Consortium, Oxford, MS.

- Whitworth, B. A.**, Simpson, L.\* & Wilson, S.\* (2018, October). *Engineering practices in the K-12 classroom*. A presentation presented at the annual meeting of the Mississippi Science Teacher Association, Biloxi, MS.
- Whitworth, B. A.** (2018, October). *Myths of learning: What matters in teaching and learning?* A presentation presented at the annual meeting of the Mississippi Science Teacher Association, Biloxi, MS.
- Whitworth, B. A.** & NAU NSTA & ASTA Student Chapter\* (2017, October). *Myths of Learning: Dispelling Common Ideas about Learning*. A presentation presented at the annual meeting of the Arizona Science Teacher Association, Phoenix, AZ.
- Whitworth, B. A.** & NAU NSTA & ASTA Student Chapter\* (2016, November). *The might of metacognition and mindsets*. A presentation presented at the annual meeting of the Arizona Science Teacher Association, Phoenix, AZ.
- Luft, J. A., **Whitworth, B. A.**, & Dubois, S. L. (2016, October). *A trajectory of science teacher learning: Charting the course path for researchers, educators, and teachers*. A paper for the Regional meeting of the National Science Teachers Association, Minneapolis, MN.
- Rubino-Hare, L. & **Whitworth, B. A.** (2016, January). *The Power of Data: Preparing the Geospatial workforce for tomorrow*. A presentation presented for the annual meeting of the Arizona STEM Collaborative, Phoenix, AZ.
- Whitworth, B. A.** (2015, November). *Engaging with engineering practices*. A presentation presented at the annual meeting of the Arizona Science Teacher Association, Phoenix, AZ.
- Whitworth, B. A.**, & Ross, D. (2014, November). *Inquiry and differentiation*. A presentation presented at the annual meeting of the Arizona Science Teacher Association, Phoenix, AZ.
- Gonczi, A. L., & **Whitworth, B. A.** (2014, February). *Situating computer simulation professional development*. A poster presented at the annual Curry Research Conference, Charlottesville, VA.
- Wheeler, L. B., Maeng, J. L., & **Whitworth, B. A.** (2014, February). *Assessing a professional development for teaching assistants implementing a project-based guided-inquiry approach to general chemistry laboratories*. A poster presented at the annual Curry Research Conference, Charlottesville, VA.
- Whitworth, B. A.**, Hodges, D.\*, Mandzak, M.\*, Parks, G.\*, & Snell, P.\* (2013, November). *Investigating inquiry: Scaffolding inquiry instruction*. A presentation presented at the annual meeting of the Virginia Association of Science Teachers, Norfolk, VA.
- Whitworth, B. A.**, Gonczi, A. L., Bell, R. L., & Maeng, J. L. (2013, February). *A case study of VISTA science coordinators*. A poster presented at the annual Curry Research Conference, Charlottesville, VA.

Wheeler, L. B., Maeng, J. L., Bell, R. L., & **Whitworth, B. A.** (2013, February). *Secondary science teachers' understanding and practices of the levels of inquiry*. A poster presented at the annual Curry Research Conference, Charlottesville, VA.

**Whitworth, B. A.**, Wheeler, L. B., Maeng, J. L., & Bell, R. L. (2012, November). *Differentiating inquiry*. A presentation presented at the annual meeting of the Virginia Association of Science Teachers, Williamsburg, VA.

Maeng, J. L., **Whitworth, B. A.**, Shaikh, I.\*, Rock, C.\*, Stewart, W.\*, & Bell, R. L. (2011, November). *Digital alternatives to hands-on dissection*. A presentation presented at the annual meeting of the Virginia Association of Science Teachers, Roanoke, VA.

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## INVITED PRESENTATIONS & TALKS

**Whitworth, B. A.** (2020, July 23). *Alternative assessments in science classrooms*. Invited Presentation. Twitter Chat: National Science Teacher Association.

**Whitworth, B. A.** (2020, February 26). *Scholarship of Teaching and Learning: An Introduction*. Invited Presentation. Oxford, MS: University of Mississippi, School of Journalism and New Media.

**Whitworth, B. A.** (2020, January 6). *Power of Grading and Assessment*. Invited Presentation. Oxford, MS: Lafayette High School.

**Whitworth, B. A.** (2019, October 31). *Effective Science Teaching Practices*. Invited Presentation. Oxford, MS: University of Mississippi Chemistry Department.

**Whitworth, B. A.** (2019, January 16). *Developing a Career Trajectory: What do I want to be when I grow up?* Invited Presentation. Oxford, MS: Lafayette High School.

**Whitworth, B. A.** (2017, September 28). *Considering the Role of the District Science Coordinator*. Invited Talk. Athens, GA: University of Georgia.

**Whitworth, B. A.** (2016, November 4). *Thesis and Dissertation: Planning, Researching, and Writing*. Graduate College Workshop. Invited Talk. Flagstaff, AZ: Northern Arizona University.

**Whitworth, B. A.** (2014, November 24). *Job Interviews and the First Year of Teaching*. TIPS Seminar. Invited Talk. Flagstaff, AZ: Northern Arizona University.

**Whitworth, B. A.** (2003, April 23). *Third Culture Kids and Me*. Faculty Colloquium. Invited Talk. Winston-Salem, NC: University North Carolina School of the Arts.

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## PROFESSIONAL LEARNING FACILITATION

### SCAFFOLD Project, Georgia, Virtual

- Leading Professional Development: Building Capacity for Collaborative School Communities, 7 hours, October 12-23, 2020
- Leading Professional Development: Building Capacity for Collaborative School Communities, 7 hours, September 14-25, 2020

**Making Sense of Science, New Mexico Department of Education, Virtual**

- Leading Professional Development: Building Capacity for Collaborative School Communities, 6 hours, 3 groups, October 19-27, 2020

**Supporting Science Instruction, Oxford, MS**

- Considering how to support K-12 teachers in implementing new standards, 8 hour day, November 15, 2019
- Examining Multidimensional Science Instruction and new standards from an administrator perspective, 8 hour day, November 14, 2019

**Science Teacher Leader Academy 2, Oxford, MS**

- Analyzing Student Data & Dealing with Difficult Parents, 8 hours, March 25-April 8, 2020
- Formative Assessment & the Nature of Science, 8 hours, September 20, 2019
- Science Teacher Leader Academy 2 Course, 8 hour days, June 24-28, 2019

**Making Sense of Science, WestEd, Berkeley, CA**

- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, February, 28, 2019

**Oxford School District, Oxford, MS**

- Multidimensional Science Education Making Sense of Science Course, 8 hours, February 18, 2019

**Building Capacity for Leadership & Professional Learning, Oxford, MS**

- Professional Learning & Developing a Plan for your Context, 8 hours, November 30, 2018
- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, November 29, 2018

**Mississippi Region VII Science Fair Teacher Workshop, University of Mississippi, Oxford, MS**

- Methods of science and science fairs, 3 hours, October 23, 2018

**Mississippi Education Teacher Program Residential Institute, University of Mississippi, Oxford, MS**

- Debunking classroom myths and getting the discussion you want, 3 hours, August 7, 2018

**Building Capacity for Leadership & Professional Learning, Oxford, MS**

- Professional Learning & Developing a Plan for your Context, 8 hours, June 26, 2018
- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, June 25, 2018

**Science Teacher Leader Academy, Oxford, MS**

- Analyzing Student Data & Dealing with Difficult Parents, 8 hours, March 22, 2019
- Formative Assessment & the Nature of Science, 8 hours, September 7, 2018
- Science Teacher Leader Academy Course, 8 hour days, June 4-8, 2018

**Dynamic Earth, Weather and Climate Grant, Peoria, AZ**

- Celebrating our Successes, 8 hours, February 23, 2018
- Revisiting Waves, Leadership, & Engineering, 8 hours, January 27, 2018
- Waves Making Sense of Science Course, 8 hours, October 20-21, 2017



- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, September, 16, 2017
- Dynamic Earth, Weather & Climate Making Sense of Science Course, 8 hour days, July 10-21, 2017
- Conceptual Understanding & Effective Science Instruction, 8 hour days, March 17, 2017

#### **Force And Matter Unify Science Grant, Globe, AZ**

- Celebrating our Successes, 8 hours, March 3, 2018
- Revisiting Waves, Leadership, & Engineering, 8 hours, February 3, 2018
- Waves Making Sense of Science Course, 8 hours, November 4, 2017
- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, September 9, 2017
- Matter Making Sense of Science Course, 8 hour days, June 12-16, 2017
- Force and Motion Making Sense of Science Course, 8 hour days, June 5-9, 2017
- Conceptual Understanding, Effective Science Instruction & the Nature of Science, 10 hours, February 24-25, 2017

#### **Peoria Unified School District, Peoria, AZ**

- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, October 20, 2017

#### **Arizona Science Coordinator Collaborative, Phoenix, AZ**

- Celebrating our Successes, 4 hours, October, 27, 2017
- Making the Case for Science Education & Developing Effective Professional Development, 8 hours, September 7, 2017
- Developing a Strategic Plan for Effective Science Instruction, 8 hours, June 1, 2017
- Leading Professional Development: Building Capacity for Collaborative School Communities, 8 hours, February 8, 2017

#### **Alliance for Investigating Motion, Force, and Energy Grant, Dysart, AZ**

- Leadership Training Day, 8 hours, February 11, 2017
- Nature of Science & Revisiting AIMFE, 8 hours, February 4, 2017
- Uncovering Student Ideas & the Nature of Science, 8 hours, October 29, 2016
- Scientific Practices & Unit Planning, 8 hours, September 17, 2016
- Energy Making Sense of Science Course, 8 hour days, June 20-24, 2016
- Energy Making Sense of Science Course, 8 hour days, June 13-17, 2016

#### **Northern Arizona University Faculty Professional Development Series, Flagstaff, AZ**

- Creating your support network, 2 hours, February 3, 2017
- The power and peril of earning zeroes in your class, 2 hours, March 28, 2016
- It's 10:00, do you know what your students know? Formative assessment of student learning, 2 hours, February 24, 2016
- Getting the discussion you want, 2 hours, February 12, 2016
- How can I use assessment activities to help my students really learn?, 2 hours, February 10, 2016

#### **Gila County Energy and ORGanisms Grant, Payson, AZ and Globe, AZ**

- Mindsets, Formative Assessment & Grading, 10 hours, November 13-14, 2015

- Mindsets, Formative Assessment & Grading, 10 hours, October 23-24, 2015
- NGSS Framework, Levels of Inquiry, & Leading Productive Discussions, 10 hours, September 25-26, 2015
- NGSS Framework, Levels of Inquiry, & Leading Productive Discussions, 10 hours, September 11-12, 2015
- Looking at Student Work & Creating High-Level Tasks, 10 hours, August 21-22, 2015
- Looking at Student Work & Creating High-Level Tasks, 10 hours, August 14-15, 2015
- Energy Making Sense of Science Course, 8 hour days, July 7-10, 2015
- Energy Making Sense of Science Course, 8 hour days, June 9-12, 2015
- Energy Making Sense of Science Course, 10 hours, April 24-25, 2015
- Energy Making Sense of Science Course, 10 hours, April 17-18, 2015

#### Flagstaff Arts and Leadership Academy, Flagstaff, AZ

- Curriculum Mapping, 8 hours, February 27, 2015

#### Charlottesville City Public Schools, Charlottesville, VA

- Inquiry Instruction, 2 hours, September 21, 2012

#### Prince William County Public Schools, Fairfax, VA

- Simplifying Inquiry Instruction, 8 hours, August 31, 2011

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### FUNDED GRANTS

**Co-Principal Investigator.** Luft, J. A. & **Whitworth, B. A.** (\$1,370,197; August 1, 2019 – July 31, 2023). *Science Coordinators Advancing a Framework For Outstanding Leadership Development (SCAFFOLD)*. National Science Foundation Discovery Research K-12 Competitive Grant Program. Grant number: 1908431.

**Co-Principal Investigator.** Steimle, A., James, J., Jackson, W. & **Whitworth, B. A.** (\$46,619.39; March 1, 2019 – April 30, 2020). *CMSE Science Teacher Leaders Academy 2*. Mississippi Space Grant Consortium.

**Principal Investigator.** **Whitworth, B. A.**, Steimle, A., James, J. & Prewitt, E. (\$299,982; October 1, 2018 – September 30, 2021). *Building Content Knowledge of Elementary Teachers of Science (BUCKETS)*. National Science Foundation IUSE Competitive Grant Program. Grant number: 1833147.

**Co-Principal Investigator.** Steimle, A., James, J. & **Whitworth, B. A.** (\$53,485; May 1, 2018 – May 31, 2019). *CMSE Science Teacher Leaders Academy*. Mississippi Space Grant Consortium.

**Principal Investigator.** **Whitworth, B. A.** & Sample, J. (\$304,647; December 5, 2016 – June 18, 2018). *Dynamic Earth, Weather, & Climate (DEWC) in Peoria Unified School District*. Arizona Department of Education Mathematics and Science Partnership Competitive Grant Program.

**Principal Investigator.** **Whitworth, B. A.**, Fredrickson, K., & Cole, D. (\$412,980; December 5, 2016 – June 18, 2018). *Force And Matter Unify Science (FAMUS) in Gila County*. Arizona Department of Education Mathematics and Science Partnership Competitive Grant Program.

**Principal Investigator. Whitworth, B. A.,** Kirkley, J. A., & Dolle, E. M. (\$560,925; February 22, 2016 – June 15, 2017). *Alliance for Investigating Motion, Force and Energy (AIMFE)*. Arizona Department of Education Mathematics and Science Partnership Competitive Grant Program.

**Co-Principal Investigator.** Rubino-Hare, L., **Whitworth, B. A.,** Sample, J., Manone, M., Fredrickson, K., & Palmer, A. (\$1,936,773; 2015-2019). *Expanding Geospatial Technology Career Development for High School Students through Teacher Professional Development*. National Science Foundation iTEST Competitive Grant Program. Grant number: 1513287.

**Interim Principal Investigator & Co-Principal Investigator.** Fredrickson, K., **Whitworth, B. A.,** & Ross, D. (\$626,450; December 8, 2014 – February 26, 2016). *Gila County Energy and ORGANisms (GEORG) for Grades K-8*. Arizona Department of Education Mathematics and Science Partnership Competitive Grant Program.

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### FUNDED SMALL GRANTS

- **University of Mississippi,** Travel grant, 2019, \$700
- **University of Mississippi,** SEC Faculty Travel Grant, Improving STEM Education in the South, 2019, \$1200
- **University of Mississippi,** Summer Faculty Research Grant, 2019, \$4000
- **University of Mississippi,** Travel grant, 2018, \$700
- **University of Mississippi,** Summer Faculty Research Grant, 2018, \$4000
- **University of Mississippi,** Travel grant, 2017, \$700
- **Northern Arizona University,** College of Engineering, Forestry, & Natural Sciences Travel Grant, 2017, \$991

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### SUBMITTED GRANTS

**Co-Principal Investigator.** Gonczi, A., **Whitworth, B. A.,** Maeng, J. L. (\$491,074; **Submitted,** 2020). *Promoting Leadership and Equity to Advance STEM Education (PLEASE)*. Spencer Foundation Large Grant Program.

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### UNFUNDED GRANTS

**Principal Investigator. Whitworth, B. A.** (\$529,326; **Unfunded,** 2020). *Science Teaching Initiative for Leadership and Learning (STILL)*. Hearin Foundation.

**Co-Principal Investigator.** Goulet, T., **Whitworth, B. A.,** Balenger, S., Jackson, C., Buchholz, R., Hoeksema, J., Zee, P., & Hom, E. (\$199,992; **Unfunded,** 2020). *Reintegrating Symbiosis: From emergence to senescence*. National Science Foundation Biology Integration Institutes Competitive Grant Program.

**Co-Principal Investigator.** Platt, B., **Whitworth, B. A.,** & Gifford, J. (\$418,057; **Unfunded,** 2020). *GP-UP: Earth Science Roadtrip for Undergraduate Pre-service Teachers (ERUPT)*. National Science Foundation iUSE Competitive Grant Program.

**Co-Principal Investigator.** Goulet, T., **Whitworth, B. A.,** & Balenger, S. (\$299,785; **Unfunded,** 2019). *Backyard science: Crickets as a conduit to comprehension of and engagement with science by*

*Mississippi middle school age girls and their network of family and friends.* National Science Foundation AISL Competitive Grant Program.

**Principal Investigator. Whitworth, B. A.,** Steimle, A., James, J. & Jackson, W. (\$4,924,946; **Unfunded**, 2019). *Building Leadership Among Science Teachers (BLAST)*. National Science Foundation Discovery Research K-12 Competitive Grant Program.

**Co-Principal Investigator.** Sumrall, W. J. & **Whitworth, B. A.** (\$500,000; **Unfunded**, 2019). *Resilience to Extreme Weather: Changing Attitude to Behavior (REWCAB)*. National Oceanic and Atmospheric Administration Environmental Literacy Competitive Grant Program.

**Co-Principal Investigator.** Bennett, J., Xiao, B., Meyer, J. & **Whitworth, B. A.** (\$24,983; **Unfunded**, 2019). *Improving production and training of Physics teachers in Mississippi*. Physics Teacher Education Coalition Recruiting Grants Program.

**Principal Investigator. Whitworth, B. A.** & Jackson, W. (\$499,826; **Unfunded**, 2019). *Developing productive student teaching mentoring relationships in science education*. Spencer Foundation Research Grants on Education: Large Competition.

**Principal Investigator. Whitworth, B. A.,** Steimle, A., James, J. & Jackson, W. (\$3,376,086; **Unfunded**, 2018). *Building Leadership Among Science Teachers (BLAST)*. National Science Foundation Discovery Research K-12 Competitive Grant Program.

**Co-Principal Investigator.** Platt, B., **Whitworth, B. A.,** & Gifford, J. (\$445,121; **Unfunded**, 2018). *GP-EXTRA: Earth Science Roadtrip for Undergraduate Pre-service Teachers in the South (ERUPTS)*. National Science Foundation iUSE Competitive Grant Program.

**Principal Investigator. Whitworth, B. A.** & Foster, E. (\$299,978; **Unfunded**, 2018). *Mississippi Abroad in Zimbabwe and Iceland*. National Science Foundation iUSE Competitive Grant Program.

**Principal Investigator. Whitworth, B. A.** & Luft, J. (\$1,346,587; **Unfunded**, 2017). *SouthEastern Coordinators (SEC) Leading for Change*. National Science Foundation Discovery Research K-12 Competitive Grant Program.

**Principal Investigator. Whitworth, B. A.** (\$19,991.65; **Unfunded**, 2017). *Fostering Excellence in Elementary Science Teaching (FEEST): Bridging Research, Practice, and Curricular Supports*. Northern Arizona University, NAU Research Development Grants Program.

**Principal Investigator. Whitworth, B. A.** (\$351,439; **Unfunded**, 2017). *Arizona STEM Coordinator Leadership Academy for K-12*. Toyota Grant Programs.

**Principal Investigator. Whitworth, B. A.** (\$14,999.86; **Unfunded**, 2016). *The Science Coordinator Role: What leadership practices do coordinators enact?* Northern Arizona University, Faculty Grants Program.

**Principal Investigator. Whitworth, B. A.** (\$5,500; **Unfunded**, 2016). *Improving Student Achievement through Mindset Intervention in a Geology Classroom*. Northern Arizona University, CEFNS Lucking Family Faculty Grant.

**Co-Principal Investigator.** Luft, J. A., **Whitworth, B. A.**, & Dubois, S. L. (\$30,453; Subcontract; **Unfunded**, 2015). *Science Educator Trajectories*. National Science Foundation Discovery Research K-12 Competitive Grant Program.

**Co-Principal Investigator.** Gray, R., **Whitworth, B. A.**, & Ross, D. (\$622,999; Subcontract; **Unfunded**, 2014). *Model Development Units (MDUs): A curriculum framework for integrating disciplinary core ideas, crosscutting concepts, scientific practices, and science-specific literacy skills*. National Science Foundation Discovery Research K-12 Competitive Grant Program.

**Co-Principal Investigator.** Ross, D., & **Whitworth, B. A.** (\$15,000; **Unfunded**, 2014). *Examining the efficacy of an intervention: Using the Five Practices Model as a tool for orchestrating productive science discussions*. Northern Arizona University, Faculty Grants Program.

## PROFESSIONAL SERVICE AND LEADERSHIP

### Board of Directors

- *National Association for Research in Science Teaching*, Board of Directors, Director at Large, 2020-2023

### Conference Program Coordinator

- *Association for Science Teacher Education*, 2020-2023

### Committee Service & Leadership

- *National Science Teachers Association*, Committee on Research in Science Education, 2020-2023
- *Association for Science Teacher Education*, Membership and Participation Committee, Member, 2018-2021
- *National Association for Research in Science Teaching*, Membership Committee, Chair, 2017-2020
- *National Science Teachers Association*, Task Force Member, Student Chapter Program, 2017
- *Association for Science Teacher Education*, Graduate Student Committee, Co-Chair, 2014
- *National Association for Research in Science Teaching*, Membership and Elections Committee, Member, 2014-2017
- *Association for Science Teacher Education*, Long Range Conference Planning Committee, Graduate Student Representative, 2013

### Editorial Review Board

- *Contemporary Issues in Technology and Teacher Education*, 2016-2022
- *Journal of Research in Science Teaching*, 2017-2023
- *Journal of Science Teacher Education*, 2015-2021

### Manuscript Reviewer

- *Teaching and Teacher Education*, 2018-Present
- *American Society for Cell Biology*, CBE – Life Sciences Education Journal, 2015-Present
- *National Association for Research in Science Teaching*, Journal of Research in Science Teaching, 2015-Present
- *Science Education*, 2015-Present
- *American Association of Physics Teachers*, The Physics Teacher, 2011-Present

- *National Science Teachers Association, The Science Teacher, 2011-Present*
- *School of Science and Mathematics Association, School of Science and Mathematics, 2011-Present*
- *Virginia Association of Science Teachers, Journal of Virginia Science Education, 2011-2014*

### Proposal Reviewer

- *American Educational Research Association, Division K – Section 1 & 8, 2015-2018*
- *Association for Science Teacher Education, Annual Meeting, 2012-2016*
- *National Association for Research in Science Teaching, Annual Meeting, 2012-2017*

### Presider

- *Association for Science Teacher Education, Annual Meeting, 2012-2016*
- *National Association for Research in Science Teaching, Annual Meeting, 2013-2015, 2018-2019*

### Strand Coordinator

- *Association for Science Teacher Education, Pre-service Science Teacher Preparation, 2016-2018*

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## UNIVERSITY SERVICE AND LEADERSHIP

### Clemson University

- Curriculum & Instruction Doctoral Program Coordinator, 2020-Present
- Undergraduate Academic Integrity Committee, 2020-Present

### The University of Mississippi

- Academic Discipline Committee, University Wide, 2018-2020
- Ph.D. Program Redesign Committee Co-Chair, 2019-2020
- Wrote Reaccreditation Report for Science Program, 2019
- Mississippi Teacher Education Program Residential Institute Sessions, 2018
- Masters Students Capstone Reader, 2018, 2020
- Doctoral Program Interviewer, 2018, 2019
- Mississippi Teacher Education Program Committee, 2017-2020
- Secondary Science Program Coordinator, 2017-Present

### Northern Arizona University

- Colleague to Colleague Mentor Program, Mentor, 2016-2017
- Productive Beginnings Planning Committee, 2016-2017
- Faculty Council on Learning Committee, 2016-2017
- Faculty Advisor, National & Arizona Science Teacher Association Student Chapter, 2015-2017
- Faculty Rights & Responsibilities Council, 2015-2017
- Faculty Senate, 2015-2017
- Academic Integrity Hearing Board, 2014-2017
- CSTL Writing Group Chair, 2014-2016
- Science Foundation of Arizona, Change the Equation Application Committee, 2014

### University of Virginia

- Curry Research Conference Chair, 2013-2014
- Curry Research Conference Program Coordinator, 2012-2013
- Curry Research Conference Presider, 2012-2013

- Curry Research Conference Proposal Reviewer, 2012-2014

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## COURSES TAUGHT

### Clemson University

- EDSC 4270 Teaching Secondary Science: Fall 2020

### The University of Mississippi

- EDCI 101 Introduction to STEM Teaching: Fall 2019
- EDCI 352 Education, Society & K-12 Learner: Fall 2017, 2018
- EDCI 353 Planning and Teaching Strategies for Effective Classroom Practice: Spring 2018
- EDCI 419 Classroom Assessment: Spring 2019
- EDSE 400 Principles of Education: Fall 2018, 2019
- EDSE 400 Supervision of Secondary Science Field Placement: Fall 2017, 2018, 2019
- EDSE 446 Special Methods I: Science: Fall 2017, 2018, 2019
- EDSE 456 Special Methods II: Science: Spring 2018, 2019
- EDSE 480 Student Teaching: Secondary Education: Spring 2018, 2019
- EDSE 636 Teaching Secondary School Science: Fall 2018
- EDSE 646 Advanced Methods of Teaching Science: Spring 2018, 2019, 2020
- EDSE 690 Seminar in Secondary Education: Spring 2018
- EDUC 555 History and Nature of Science: Fall 2019

### Northern Arizona University

- TSM 300 Knowing and Learning: Spring 2015
- TSM 303 Knowing and Learning in Science: Fall 2015, 2016
- TSM 595 Secondary Science Internship: Fall 2014
- SCI 610 Advanced Science Teaching and Learning: Fall 2014, 2015, 2016
- SCI 612 Using Science Assessments to Facilitate Instructional Change: Spring 2015, 2016, 2017
- SCI 613 History and Nature of Science: Fall 2014
- SCI 630 Survey of Literature in Science Education: Fall 2015, 2016
- SCI 689 MAST Portfolio: Fall 2014, 2015, 2016, Spring 2015, 2016, 2017

### University of Virginia

- ASTR 6340 Astronomy Concepts in the Classroom: Summer 2012
- EDIS 4885 Secondary Science Field Placement: Fall 2012
- EDIS 5050 Teaching Secondary Science I: Fall 2012
- EDIS 5051 Teaching Secondary Science II: Spring 2013
- EDIS 5875 Student Teaching Seminar: Fall 2011, Fall 2012, Spring 2013

### Punahou School

- High School Physics
- High School Chemistry
- High School Honors Chemistry
- High School Algebra I

### University North Carolina School of the Arts

- High School Physics
- High School Chemistry

- High School Physical Chemistry
- Yearbook

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## PROFESSIONAL AFFILIATIONS

- American Association of Physics Teachers (AAPT), 2011-Present
- American Chemical Society (ACS), 1999-2004, 2011-Present
- American Educational Research Association (AERA), 2011-Present
- Association of Supervisors and Curriculum Developers (ASCD), 2014-Present
- Arizona Science Teacher Association (ASTA), 2014-2017
- Association for Science Teacher Education (ASTE), 2011-Present
- Kappa Delta Phi (KDP), 2018-Present
- Mississippi Science Teacher Association (MSTA), 2018-2020
- National Association for Research in Science Teaching (NARST), 2011-Present
- National Science Education Leadership Association (NSELA), 2014-Present
- National Science Teaching Association (NSTA), 2001-Present
- Professional and Organizational Development (POD) Network in Higher Education, 2016-2017
- School of Science & Mathematics Association (SSMA), 2011-2014
- Virginia Association of Science Teachers (VAST), 2011-2014

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## DISSERTATION, THESES, NON-THESES, AND GRADUATE STUDENT SUPERVISION

### Doctoral Dissertation Committee Member

- Yamil Ruiz, Secondary Science Education, 2020-Present
- Jacquelyn Moseley, Chemistry, 2020-Present
- Carly Rock, Chemistry, 2020-Present
- Savannah Draud, Biology, 2019-Present
- Akacia Halliday, Biology, 2019-Present
- Jordan Heiman, Biology, 2019-Present

### Masters Thesis Committee Member

- Timothy Jaynes, Chemistry, 2015-2017
- Peter Holloway, 2014-2015

### Masters Non-Thesis Committee Chair

- Audrey Baird, 2016-2017
- Bailey Mahlum, 2016-2017
- Angelica Buenrostro, 2015-2017
- Joan Hedman, 2015-2017
- Heather Orozco, 2015-2016
- Stephanie Beyea, 2015

### Masters Non-Thesis Committee Member

- Shawn Jones, 2016-2017
- Amanda Davis, 2016-2017
- Kaitlin Sovinski, 2016-2017
- Jeffrey Hines, 2015
- Amanda Grimes, 2014



### Graduate Student Supervision

- Yamil Ruiz, Doctoral Graduate Assistant, 2020-Present
- Shelby Watson, Doctoral Graduate Assistant, 2019-2020
- Nicole Comstock, Masters Graduate Assistant, 2019-2020
- Eric Nolan, Doctoral Graduate Assistant, 2018-2020
- Lauren Simpson, Masters Graduate Assistant, 2018-2020
- Sheree Wilson, Masters Graduate Assistant, 2018-2020
- Phillip Laney, Doctoral Graduate Student, 2017-2019
- Kelsey LeMon, Masters Graduate Assistant, 2017-2018
- Tia Raught, Masters Graduate Assistant, 2017-2018
- Megan Walker, Doctoral Graduate Assistant, 2016-2018
- Kayla Arendt, Masters Graduate Assistant, 2016-2018
- Tonya DeBerg, Masters Graduate Assistant, 2015-2016
- Chris Atwood, Masters Graduate Assistant, 2014-2015

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### PERSONAL PROFESSIONAL LEARNING

- Camp Making Sense of Science, 2019
- OpEd Program, University of Mississippi, 2019
- Applied Multilevel Models for Longitudinal and Clustered Data, 2019
- Women in Science Writing Retreat, 2019
- Camp Making Sense of Science, 2018
- Women in Science Writing Retreat, 2018
- Camp Making Sense of Science, 2017
- Arizona Science Standards Revision Committee, Arizona Department of Education, 2017
- Matter Facilitation Academy, Making Sense of Science, 2017
- Dynamic Earth Facilitation Academy, Making Sense of Science, 2017
- Women in Science Writing Retreat, 2017
- Force & Motion Facilitation Academy, Northern Arizona University, 2016
- Women in Science Writing Retreat, 2016
- Now what? A workshop for developing your research agenda and identifying funding to support your scholarship, Northern Arizona University, 2015
- Energy Facilitation Academy, Making Sense of Science, 2015
- Argument Driven Inquiry Workshop, Arizona Science Teachers Association, 2014
- Scholarly Writing Workshop, Northern Arizona University, 2014
- NGSS Practices in Action, National Science Teacher Association, 2014
- Presenting Data and Information, Edward Tufte, 2013
- PE4Life Resource Conference, PE4Life, 2009
- Personal Learning Network Seminar, Punahou School, 2009
- Learning Differences Conference, Punahou School, 2009
- LifeTouch Yearbook Workshop, LifeTouch, 2008
- Flinn Chemistry Demonstration Training, Appalachian State University, 2007
- Physics Course for Educators, Montana State University, 2006
- Southern Association of Colleges and Schools Accreditation Training, SACS, 2005
- Physics Modeling Workshop, University of Hawaii, 2004
- Forces and Motion Teaching & Learning Course, JASON Academy, 2004
- Teaching Project-Based Science Teaching & Learning Course, JASON Academy, 2004
- Chemical Safety Seminar, Flinn Scientific, 2003