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## **EDUCATIONAL BACKGROUND**

M.Ed, Miami University, Oxford, OH, Curriculum and Teacher Leadership

M.A. Geology, Miami University, Oxford, OH, Water Resources

B.A. Geology, Spanish, Franklin & Marshall College, Lancaster, PA

## **ACADEMIC AND PROFESSIONAL APPOINTMENTS**

Teacher Coach, Temple Teacher Residency (TTR), Temple University College of Education, 2017

Graduate Research Assistant, Temple University College of Education, Philadelphia, PA. Aug 2014-present

Education Specialist, Ames Community College Education Development Program (ACCEDP),  
Universities Space Research Association, NASA Ames Research Center, CA. July 2011-July 2014

Adjunct Faculty, San Jose State University, Department of Geology, San Jose, CA, Aug 2010-Aug 2014

Adjunct Faculty, UC Berkeley, CalTeach, Berkeley, CA, Aug 2009-July 2011

## **AWARDS AND HONORS**

Jhumki Basu Scholar, National Association for Research in Science Teaching (NARST), 2018

Community for Advancing Discovery Research in Education (CADRE) Fellow, 2017-2018

Richard C. Anderson Graduate Student Research Award for *Understanding the relationship between teacher use of epistemic operations and complexity of students' explanations*, National Consortium for Instruction and Cognition, 2017

Ford Foundation Pre-doctoral Fellowship, Honorable Mention, 2016

Temple University First Summers Research Initiative (FSRI) Fellowship, Summer 2015, 2016, 2017

## **PUBLICATIONS**

### **REFEREED JOURNAL ARTICLES**

Lombardi, D., Bickel, E. S., Bailey, J. M., & Burrell, S. (2018). High school students' evaluations, plausibility (re) appraisals, and knowledge about topics in Earth science. *Science Education*, 102(1), 153-177. doi: 10.1002/sce.21315

Hopkins, J.D., Crones, P., Burrell, S., Bailey, J.M., & Lombardi, D. (2016). Evaluating connections

between fracking and earthquakes [Special issue]. *The Earth Scientist*, 32(2), 23-30.

### REFEREED PRESENTATIONS

- Burrell, S. (2018-accepted). *Towards a geoscience pedagogy: a socio-cognitive model*. Poster accepted for presentation at the Graduate Student Symposium of the 2018 National Association for Research in Science Teaching, Annual International Meeting, Atlanta, GA.
- Burrell, S., Lombardi, D., Bickel, E., & Bailey, J.M. (2018-accepted). *Development of a model describing scientific thinking in Earth science students*. Poster accepted for presentation at the 2018 National Association for Research in Science Teaching, Annual International Meeting, Atlanta, GA.
- Burrell, S., & Lombardi, D. (2017). *Democracy and Earth science education: Instructional scaffolds that promote evidence-based reasoning and critical evaluation*. Paper presented at the 8<sup>th</sup> New DEEL [Democratic Ethical Educational Leadership] Conference, Philadelphia, PA.
- Burrell, S., & Lombardi, D. (2017). *Understanding the relationship between teacher use of epistemic operations and complexity of students' explanations*. Poster presented at the 2017 National Consortium for Instruction and Cognition Annual Meeting, San Antonio, TX.
- \*Note: This paper received the 2017 Richard C. Anderson Graduate Student Research Award, given to the outstanding paper submitted by a graduate student who was first author for a paper accepted to the 2017 American Education Research Association Conference or the 2017 National Consortium for Instruction and Cognition Conference.*
- Bailey, J.M., Lombardi, D., Bickel, E.S., & Burrell, S. (2017). Deepening high school students' knowledge about Earth science topics through scientific evaluation and plausibility reappraisal. Paper presented at the 2017 National Association for Research in Science Teaching, Annual International Meeting, San Antonio, TX.
- Lombardi, D., Bickel, E.S., Burrell, S., & Bailey, J.M. (2016). *Students' evaluations of pro and con arguments*. Poster presented at the 26<sup>th</sup> Annual Meeting of the Society of Text & Discourse, Kassel, Germany.
- Burrell, S., Lombardi, D., & Bailey, J.M. (2016). *MEL diagrams: An instructional strategy that promotes scientific thinking and practice in Earth science students*. Poster presented at the National Association for Research in Science Teaching 2016 Annual International Meeting, Baltimore, MD.
- Burrell, S., Lombardi, D., & Bailey, J. M. (2015). *The impact of implementation of model-evidence link (MEL) diagrams in high school science classrooms on critical evaluation and knowledge gains: A comparative study*. Poster presented at the 2015 National Consortium for Instruction and Cognition Annual Meeting, Chicago, IL.

### CONFERENCE PAPERS (NON-REFEREED)

- Burrell, S. (2017). Towards a geoscience pedagogy: a socio-cognitive model. *Abstracts with Programs- Geological Society of America*, 49(6), doi: 10.1130/abs/2017AM-308592
- Nyquist, J., Kanaley, C., Burrell, S., Toran, L., Davatzes, A., & Brandt, C., (2017). A geopath-funded

- math mentoring initiative for retention. *Abstracts with Programs-Geological Society of America*, 49(6), doi: 10.1130/abs/2017AM-303857
- Burrell, S. & Lombardi, D. (2016). The Critical Evaluation Task (CET) as an instructional scaffold to support evidence-based reasoning: analysis of student learning outcomes. *Abstracts with Programs-Geological Society of America*, 48(7)
- Burrell, S., Lombardi, D., Bailey, J. M., & Bickel, E. S., (2015). Implementation of the Model-Evidence Link (MEL) diagram in high school Earth science classrooms: An educational strategy that promotes critical evaluation and evidence-based reasoning. *Abstracts with Programs-Geological Society of America*, 47(7), 554
- Burrell, S., Bailey, J. M., & Lombardi, D., (2015). The effect of a student-centered academic intervention on teacher practice in high school Earth science classrooms: A mixed methods study. *Abstracts with Programs-Geological Society of America*, 47(7), 253.
- Burrell, S. (2014). Engaging the next generation of geoscientists: effective educational strategies that increase access to Earth science careers, improves geo-consciousness in global citizens, and prepares pre-service teachers for the science classroom. *Abstracts with Programs-Geological Society of America*, 46(6), 801.
- Burrell, S. (2013). Educating the next generation of geoscientists by providing learning opportunities in geology for pre-college and college students in formal and informal settings. *Abstracts with Programs-Geological Society of America*, 45(7), 282.
- Burrell, S., (2012). *Increasing participation in the Earth sciences through engagement of K-12 educators in Earth system science analysis, inquiry and problem-based learning and teaching*. Abstract ED43A-0722 presented at 2012 Fall Meeting, AGU, San Francisco, CA.
- Burrell, S. (2012). Project ENGAGE (Educating the Next Generation of Geoscientists: building academic pathways that increase access and broaden participation in the Earth sciences. *Abstracts with Programs-Geological Society of America*, 44(7), 103.
- Burrell, S., & White, L.D., (2012). SF ROCKS to METALS: The evolution of an informal science education program to broaden participation of under-represented groups in the Earth sciences. *Abstracts with Programs-Geological Society of America* 44(7), 447.
- Pruett, L.E., Burrell, S., Chidester, C., & Metzger, E.P. (2010). *Can skateboarding save the planet? A curricular unit on global climate change developed through the NASA lift-off program*. Abstract ED43A-0666 presented at 2010 Fall Meeting, AGU, San Francisco, CA.
- Burrell, S., (2010). Reaching the next generation of geoscientists--effective, data-based strategies that maximize the potential of 2year geoscience programs to recruit and retain members of underrepresented groups. *Abstracts with Programs- Geological Society of America*, 42(5), 208.
- Burrell, S., (2010). Beyond the classroom and the lab--using meaningful field experiences to engage students in the geosciences. *Abstracts with Programs- Geological Society of America*, 42(5), 446
- Burrell, S., (2009). Educating the next generation of geoscientists--creating a pipeline for women and ethnic minorities. *Abstracts with Programs- Geological Society of America*, 41(7), 246.

#### **CONTRIBUTED (NON-REFEREED) PRESENTATIONS & WORKSHOPS**

- Burrell, S. (2014). Educating the next generation of geoscientists: engaging undergraduates in the study of climate science. American Meteorological Society 94<sup>th</sup> Annual Meeting 2014, Atlanta, GA.
- Burrell, S. (2012). Engaging underrepresented audiences using ESSEA curricula. Earth Systems Science Education Alliance Annual Conference 2012, Monterey, CA.
- Burrell, S. and \*Nnoka, C. (2012). Educating the next generation of geoscientists (ENGAGE): plans, perspectives, and preliminary results. National Association of Black Geoscientists Annual Technology Conference 2012, Arlington, VA.
- White, L.D. and Burrell, S., (2011). The METALS Partnership, National Association of Black Geoscientists Annual Technology Conference 2011, San Francisco, CA.

### **RESEARCH GRANTS AND TRAVEL AWARDS (FUNDED)**

- GSA student travel award, funded by the Geological Society of America, Northeastern Section, \$130 (awarded September 2017)
- Understanding transformative learning and interest development in urban place-based Earth science education, funded by the National Science Foundation, EHR NSF 16-067 Improving Graduate Student Preparedness for Entering the Workforce, Opportunities for Supplemental Support, \$34,999 (1-year period) awarded June 2017
- Towards an Urban Geoscience Pedagogy, Graduate Student Research Grant Proposal, funded by the Geological Society of America, \$2422 (1year period), awarded April 2017
- ENGAGE: Educating the Next Generation of Geoscientists, S. Burrell (PI), funded by the National Science Foundation, GEOED (Grant No. NSF GEO-1140961), \$150,000 (2-year period), awarded September 2010. The project was transferred upon entering doctoral program to L.D. White as PI. Project funding has been extended through 2017.
- GSA student travel award, funded by the Geological Society of America, Geoscience Education, Division, \$200 (awarded August 2016)
- GSA student travel award, funded by the Geological Society of America, Northeastern Section, \$90 (awarded August 2016)

### **SERVICE ACTIVITIES**

#### **AD-HOC REVIEWER**

- Reviewer, *Science Education*, 2018
- Graduate Student Reviewer of Submissions, National Association for Research in Science Teaching, 2017
- Reviewer, *Physical Review Physics Education Research*, 2017
- Reviewer, *Anthropology of Education Quarterly*, 2016
- Review Panel, National Science Foundation grant proposals, 2016

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\* Asterisk indicates that the co-author was an undergraduate student during presentation development and delivery.

Graduate Student Reviewer of Submissions, Division C Learning and Instruction, Section 1d: Science, Section 3a: Learning Environments, American Educational Research Association, August 2015.

#### **TECHNICAL SESSION ORGANIZER**

Session Advocate and Co-chair, T81. Increasing Engagement and Improving Learning Outcomes for Geology Students: Using Cognitive Science to Inform Geoscience Teaching and Learning, 2016 Annual Meeting Geological Society of America, Denver, CO. Session co-chair: A. Jaegar, Temple University

Session Advocate and Co-chair, T78: Engaging the Next Generation of Geoscientists: Effective Educational Strategies that Broaden Participation and Prepare Diverse Learners for Advanced Study and Careers in the Earth Sciences, 2014 Annual Meeting Geological Society of America, Denver, CO. Session co-chair: L. Teruya, San Jose State University

Session Advocate and Co-chair, T121 Educating the Next Generation of Geoscientists: Effective Strategies That Engage Students, Invest in the Future Geoscience Workforce, and Increase Participation of Members of Historically Underrepresented Communities in the Geosciences, 2013 Annual Meeting Geological Society of America, Vancouver, BC. Session co-chairs: L.D. White, UC Berkeley, and D. Maygarden, Univ New Orleans

#### **MENTOR**

On to the Future, Geological Society of America, 2017

#### **UNIVERSITY AND COLLEGE SERVICE**

Graduate Organization for the College of Education, Temple University, 2015-present

Consultative Review Committee of the Dean of the College of Education, 2018

#### **PROFESSIONAL ASSOCIATIONS**

American Educational Research Association, Division C, Graduate Student Member

American Geophysical Union, Graduate Student Member

Geological Society of America, Graduate Student Member

National Association for Research in Science Teaching, Graduate Student Member

National Consortium for Cognition and Instruction, Graduate Student Member