

Brooke Coley, Ph.D.

The Polytechnic School
Arizona State University
Mesa, AZ 85212
bccoley@asu.edu
Office: (480)727-2564

1. EDUCATION

- Ph.D. University of Pittsburgh, Bioengineering, 2010
Dissertation: Adaptive Postural Strategies: Impact of Aging
B.S. University of Maryland, Baltimore County, Chemical Engineering, 2003

2. PROFESSIONAL POSITIONS HELD

- 2017-present Assistant Professor, Arizona State University Polytechnic
2015-2017 Associate Research Scientist, Arizona State University
2014-2015 Associate Director, Center for Diversity in Engineering, University of Virginia
2013-2014 Engineering Analyst, Engineering Education and Centers, Engineering
Directorate, National Science Foundation
2011-2013 Science & Technology Policy Fellow, American Association for the
Advancement of Science, National Science Foundation

3. PUBLICATIONS

a. Refereed Journal Articles

i. Published

1. Boklage, A., Coley, B., & Kellam, N. (2018). Understanding engineering educators' pedagogical transformations through the hero's journey. *European Journal of Engineering Education*. <https://doi.org/10.1080/03043797.2018.1500999>

ii. Under Review

1. Cirell, A., Kellam, N., Boklage, A., & Coley, B. Remaking Space in the Makerspace, *Journal of Engineering Education*.
2. Boklage, A., Cirell, A., Coley, B., & Kellam, N. "You can Shake my Hand, too": Storying Difference to Promote Liberatory Means of Critical Pedagogy in Engineering Education, *Journal of Engineering Education*.

iii. In Preparation

1. Coley, B. & Kellam, N. (in preparation). Faculty as wanderers: Exploring engineering faculty's winding trajectories on their journeys to becoming exemplar teachers. To be submitted to: *Journal of Engineering Education*.

2. Coley, B., **Greene, M., Jennings, M.**, Kellam, N. (in preparation). Using narrative to story how Underrepresented undergraduates cope with stressors in engineering education. To be submitted to: *Journal of Engineering Education*.

b. Conference Proceedings

1. **Scott, K.** & Coley, B. The Eyes Don't Lie: Using Eye Tracking to Identify Implicit Bias in Engineering Environments. *Proceedings of the Collaborative Network for Engineering and Computing Diversity (CoNECD) Intl. Mtg.*, Crystal City, VA, abstract accepted.
2. Coley, B., **Vignola, C., & Flowers, N.** Engineering a New Reality: Using virtual reality to cultivate inclusive mindsets among engineering faculty. *Proceedings of the Collaborative Network for Engineering and Computing Diversity (CoNECD) Intl. Mtg.*, Crystal City, VA, abstract accepted.
3. Coley, B., **Greene, M., & Kellam, K.** Black Men in the Making: Engaging in makerspaces promotes agency and identity for Black males in engineering. *Proceedings of the Collaborative Network for Engineering and Computing Diversity (CoNECD) Intl. Mtg.*, Crystal City, VA, abstract accepted.
4. **Jennings, M.**, Coley, B., Boklage, A., **Bruhis, N.** & Kellam, N. Reimagining the Future of University-Affiliated Makerspaces for Diverse Students. *Proceedings of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Jacksonville, FL, abstract accepted.
5. **Lam, C., Cruz, S.**, Kellam, N. & Coley, B. Making Space for the Women: Solidifying Female Engineering Identities through Engagement in Makerspaces. *Proceedings of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Jacksonville, FL, abstract accepted.
6. Coley, B. Immersion for Inclusion: Virtual reality as a novel approach to developing faculty. *Proceedings of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Jacksonville, FL, abstract accepted.
7. **Bennett, N.** & Coley, B. Main Stream Media as an Avenue to Develop Engineering Agency Among Black Youth. *Proceedings of the 8th Research in Engineering Education Symposium (REES)*, Cape Town, South Africa, abstract accepted.
8. **Green, K., Bennett, N., & Coley, B.** Cultivating Culture Change in Engineering and the Language of Inclusion: Understanding Institutional Policies as a Necessary Step. *Proceedings of the 8th Research in Engineering Education Symposium (REES)*, Cape Town, South Africa, abstract accepted.
9. **Cruz, S., Lam, C.**, Kellam, N., & Coley, B. Intersectionality and Coping Strategies: Learning from the Experiences of Black Women in Engineering Spaces. *Proceedings of the 8th Research in Engineering Education Symposium (REES)*, Cape Town, South Africa, abstract accepted.

10. Boklage, A., Kellam, N., & Coley, B. Promising practices that promote inclusivity at University-affiliated makerspaces within schools of engineering. *Proceedings of the 8th Research in Engineering Education Symposium (REES)*, Cape Town, South Africa, abstract accepted.
11. Kellam, N., Cirell, A., Boklage, A., & Coley, B. (2018). Exploring I-poems to Explore the Identity of Underrepresented Engineering Student Makers. *Proceedings of the Frontiers in Education Conference*, San Jose, CA. ISBN: 978-1-5386-1174-6/18
12. Kellam, N., Coley, B., Boklage, A., & Cirell, A. (2018). An exploration of the diverse stories of engineering students at community colleges: Findings from year one. *Proceedings of the NSF Grantees Poster Session of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Salt Lake City, UT.
13. Kellam, N., Coley, B., Boklage, A., & Cirell, A. (2018). Making a New Path: Using Theory and Narrative Inquiry to Understand the Student Experience in University Makerspaces. *Proceedings of the NSF Grantees Poster Session of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Salt Lake City, UT.
14. **Huang, W.** & Coley, B. (2018). Examining People's Affect and Self-efficacy in Head-Mounted Display Virtual Reality. *Proceedings of the Institute of Electrical and Electronics Engineering Conference on Virtual Reality (Doctoral Consortium)*, Reutlingen, Germany.
15. Kellam, N., Coley, B., & Boklage, A. (2017). Story of Change—Using experience-based critical event narrative analysis to understand an engineering program's culture. *Proceedings of the 7th Research in Engineering Education Symposium (REES)*, #190, Bogota, Colombia.
16. Kellam, N., Walther, J., Durham, S., Coley, B., & Boklage, A. (2017). "A Long Way Coming"—Understanding Engineering Educators' Transformations to Student-Centered Teaching through the Hero's Journey. *Proceedings of the 7th Research in Engineering Education Symposium (REES)*, #188, Bogota, Colombia.
17. Kellam, N., Coley, B., Boklage, A., & Walther, J. (2017). Connected Ways of Knowing: Uncovering the Role of Emotion in Engineering Student Learning. *Proceedings of the NSF Grantees Poster Session of the American Society for Engineering Education (ASEE) Intl. Mtg.*, Columbus, Ohio.
18. Kellam, N., Coley, B., & Boklage, A. (2017). Narrative Smoothing and Constructing in the Wild: Navigating the Space of Co-Constructing Narratives for Analysis. *Proceedings of the American Educational Research Association (AERA) Conference*, San Antonio, Texas.
19. Kellam, N., Boklage, A., & Coley, B. A Narrative Inquiry Approach to Understand Engineering Students' Identity Formation, (2016), *Proceedings of the Educational Research Methods Division of the American Society for Engineering Education (ASEE) Intl. Mtg.*, New Orleans, LA.

20. Coley, B., & Vallas, C. (2015). Tapping into the Talent: Exploring the Barriers of the Engineering Transfer Pathway. *Proceedings of the Two-Year College Division of the American Society for Engineering Education (ASEE) International Meeting*, Seattle, Washington, Paper #13792.
21. Coley, B. (2015). Diversity from the Inside Out: Exploring the Institutional Climate in Engineering Programs across the country. *Proceedings of the American Educational Research Association (AERA) Conference*, Chicago, Illinois.
22. McLaughlin, D. Rubin, K., Coley, B. (2013). Diversity Impacts in Large Research Centers: Cast Study of the US NSF Engineering Research Centers Program. *Proceedings of the Triple Helix International Conference*, London, United Kingdom.

4. HONORS AND AWARDS

2018	ASU Graduate and Professional Student Association Centennial Professorship Award
2017	KEEN Professorship mini-grant recipient
2017	Apprentice Faculty Grant recipient, Education and Research Methods Division, American Society for Engineering Education
2017	Serving University Needs (SUN) Award
2011-2013	American Association for the Advancement of Science, Science and Technology Policy Fellow
2007	Outstanding Teaching Assistant Award, Department of Bioengineering, University of Pittsburgh

5. GRANTS

2018-2019	When Mental Walls Lead to Physical Walls: Engineering, Social Responsibility, and the US-Mexico Border Wall, SFIS/IFIS Collaborative Seed Grant, Co-Principal Investigator, \$8,000, awarded.
2018-2021	Learning from the PROSE: Exploring Professional Organizations' Role in Supporting Black Engineering Student Success, Engineering Education and Centers, National Science Foundation, NSF#1828659, Principal Investigator, \$550,000, awarded.
2017-2018	Empowered to Include: A pedagogical innovation applying entrepreneurial thinking to address inequities in Engineering, Kern Foundation, Principal Investigator, \$12,000, awarded.
2017-2020	The Untapped Community: Community Colleges as an avenue to Broaden Participation in Engineering. Engineering Education and Centers, National Science Foundation, NSF#1733716, Co-Principal Investigator, \$399,388, awarded.
2016-2019	Value through the Voices: Exploring making and its Impact on Engineering Identity Formation of Underrepresented Groups. Engineering Education and

Centers, National Science Foundation, NSF#1636475, Co-Principal Investigator, \$599,905, awarded.

2005-2010 Adaptive Postural Strategies: Impact of Aging, National Institute on Aging, National Institutes of Health, NIH-NIA 1 F31 AG025684, Principal Investigator, \$118,750 + partial tuition, awarded.

6. INVITED TALKS, LECTURES & WORKSHOPS

Proposed Special Interactive Session: Coley, B. Towards a New Reality: Using Virtual Reality to Cultivate a more Inclusive and Empathetic Engineering. *Proceedings of the Frontiers in Education Conference*, Cincinnati, OH.

Invited Keynote Speaker, *Girls Make-a-thon: Innovation Nation*, Arizona State University, Fall 2018

Invited Keynote Speaker, *National Society of Black Engineers Annual Banquet*, Arizona State University, Spring 2018

Okwu, C. E., Flournoy Fowler, L., Allen, A., Coley, B., (2018). Identifying Counterspaces to Enhance Self Care for Black Female Engineers; workshop submission for the National Society of Black Engineer's Annual Convention in Pittsburgh, PA; peer-reviewed process.

“Inclusive Maker Pedagogies and the Power of Story for Innovation in Engineering.” (2017). Ho Chi Minh City University of Technology Faculty Development Workshop, Ho Chi Minh, Vietnam, July 18-21.

“From Stress to Success: From Lemons to Lemonade in Engineering.” (2016). National Society of Black Engineers Region II Meeting, Norfolk, VA, October 17.

“Creating Effective Mentor-Mentee Relationships in Difference.” (2016). University of Pittsburgh AGEP Scholars and Faculty Inaugural Retreat, West Virginia, September 24.

“Roadmap to Action: LSAMP Principles for Broadening Participation in STEM.” (2014). Louis Stokes Midwest Center for Excellence, Chicago, IL, October 25.

“A Study of the ERC Impact on Diversity.” (2012). NSF ERC Annual Meeting, Bethesda, MD, November 15.

Maldonado, T., Coley, B. (2012). Gender Diversity, Institutional Culture, and NSF's Engineering Research Centers. Keynote Address. Presented at the Women Engineering Proactive Network Conference, Columbia, Ohio.

7. CONFERENCE ACTIVITY

a. Conferences Organized

2013 NSF Engineering Research Center Diversity Working Group Meeting, National Science Foundation, Arlington, Virginia.

b. Panels

2018 Invited Panelist, *Day at Intel*, Spring.

2018 Invited Panelist, *Resiliency Panel: Made of Something Strong*, Polytechnic Campus.

2014 Engineering Research Centers: Linking Discovery to Innovation. Invited Moderator for the Louis Stokes Midwest Center for Excellence Conference, Chicago, Illinois.

2006-2008 Why Should I Attend Graduate School? Panelist, School of Engineering, University of Pittsburgh

c. Campus and Departmental Talks

2013 A SWOT to Improve Diversity in Engineering Departments. Invited Seminar and workshop at the Swanson School of Engineering sponsored by the Office of Diversity, University of Pittsburgh, Pittsburgh, Pennsylvania.

8. TEACHING EXPERIENCE

Instructor, Use Inspired Design I (Fall 2018), 2nd year students, 2.5 contact hours per week, Arizona State University, 18 students

Instructor, From then Until Now: Addressing Inequities in STEM (Spring 2018), graduate students, 2.75 contact hours per week, Arizona State University, 7 students

Instructor, Use Inspired Design I (Fall 2017), 2nd year students, 2.5 contact hours per week, Arizona State University, 40 students

Instructor, Use Inspired Design II (Spring 2016), 2nd year students, 2.5 contact hours per week, Arizona State University, 32 students

Instructor, Introduction to Engineering (Summers 2006-2009), incoming 1st year students, 5 contact hours per week, Pitt Excel Program, University of Pittsburgh

Teaching Assistant (Fall 2006), Ergonomics and Occupational Biomechanics, graduate course, 3 contact hours per week, Department of Bioengineering, University of Pittsburgh

Teaching Assistant (Spring 2005), Biomechanics I; Mechanical Principles Applied to Biological Systems, undergraduate course—primarily 2nd year students, 3 contact hours per week, Department of Bioengineering, University of Pittsburgh

Teaching Assistant (Fall 2002), Introduction to Engineering Science, undergraduate course—primarily 1st year students, 3 contact hours per week, University of Maryland, Baltimore County

9. SERVICE TO PROFESSION

a. Journal Refereeing

Journal of Engineering Education

b. NSF Related Activity

Panelist, Research Experiences for Undergraduate Site Panel (2017, 2018)

Panelist, Engineering Research Center Planning Grant Panel (2018)

Site Visit Team Member, Network for Computational Nanotechnology (NCN): *nanoBIO* Node (2018)

Site Visit Team Member, Network for Computational Nanotechnology (NCN): *nanoMFG* (2018)

Panelist, Research Experiences for Teachers (2016)

Panelist, Research Experiences for Undergraduates (2016)

Panelist, Research in Engineering Education Program (2015)

Site Visit Team Member, Nanomanufacturing Systems for Mobile Computing and Mobile Energy Technologies (2014)

Site Visit Team Member, Center for Ultra-Wide Area Resilient Electric Energy Transmission Networks, University of Tennessee-Knoxville (CURENT) (2014)

Site Visit Team Member, Quantum Energy and Sustainable Solar Technologies (QESST), Arizona State University (2013)

Site Visit Team Member, Center for Compact Fluid and Efficient Fluid Power (2013)

Site Visit Team Member, Center for Sensorimotor Neural Engineering (CSNE), University of Washington (2012)

Site Visit Team Member, Future Renewable Electric Energy Delivery and management Systems Center, North Carolina State University (2012)

Site Visit Team Member, Revolutionizing Metallic Biomaterials, North Carolina A&T State University (2012)

c. External Advisory Boards

Advisory Board Member, University of Pittsburgh AGEP KAT: Transition to the Doctorate by Adaptable Engagement Program, NSF#1434012, National Science Foundation, \$1,729,843

d. Community Service

Volunteer, Poly Day of Service, Painted houses for House of Refuge (2018)

Volunteer and Coordinator, Introduction to Engineering Projects, Buford Middle School, Charlottesville, Virginia (2014)

Co-Advisor, National Society of Black Engineers, University of Virginia (2014)

Division Representative, Feds Feed Families, National Science Foundation, Arlington, Virginia (2012-2014)

Judge, Research Presentations, Emerging Research National Conference, Atlanta, Georgia (2012)

Chair, Pre-College Initiative Committee, Pittsburgh Alumni Extension Chapter, National Society of Black Engineers (2008-2009)

Outreach Coordinator, Bioengineering Graduate Student Council, Department of Bioengineering, University of Pittsburgh (2005-2006)

10. SUPERVISION OF STUDENTS

a. Graduate Student Mentoring

2018 - Present Michael Greene, Doctoral Student, Engineering Education and Systems Design, Dissertation Advisor

2018 - Present Christina Lam, Doctoral Student, Counseling Psychology, Research Supervisor

2018 - Present Samantha Cruz, Doctoral Student, Counseling Psychology, Research Supervisor

2017 - 2018 Wen Huang, Doctoral Student, Engineering Education and Systems Design, Thesis Co-Advisor

b. Undergraduate Student Mentoring

2018-Present ***Claudio Vignola***, Undergraduate Researcher, Arizona State University, The Polytechnic School, Robotics Engineering.

2018-Present ***Kaila Kirkman***, Grader, Arizona State University, The Polytechnic School, Electrical Engineering.

2018-Present ***Kylel Scott***, Undergraduate Researcher, Arizona State University, The Polytechnic School, Mechanical Engineering.

2018-Present ***Kamille Green***, Undergraduate Researcher, Arizona State University, The Polytechnic School, Mechanical Engineering.

2018-Present ***Njeri Bennett***, Summer Undergraduate Researcher, Auburn University, Industrial Engineering.

Summer 2018 ***Vashty Lamadrid***, Summer Undergraduate Researcher, Arizona State University, Political Science.

Summer 2018 ***Cabrel foyet-fokou***, Summer Undergraduate Researcher, Arizona State University, Electrical Engineering.

- 2017-2018 *Alex Razman*, Grader and Summer Undergraduate Researcher, Arizona State University, The Polytechnic School, Automotive Engineering.
- 2008-2010 Wilshaw Stevens, Undergraduate Researcher, Presented at the Proceedings of the Biomedical Engineering Society, Pittsburgh, Pennsylvania, 2009.
- 2007 Leah Enders, Undergraduate Researcher, University of Pittsburgh
- 2007 Alison Sukits, Undergraduate Researcher, University of Pittsburgh

11. PROFESSIONAL SOCIETY MEMBERSHIP

American Society for Engineering Education
 American Educational Research Association
 National Society of Black Engineers
 National Association of Multicultural Engineering Program Advocates

12. NON-ACADEMIC WORK

Certified Basketball Official, Virginia High School League, Hampton Roads, Virginia, 2016.
 Sundance Festival Volunteer, Park City, Utah, 2016.
 Presenter, Ignite Phoenix, Scottsdale, Arizona, 2016.
 Audience Award Winner, 1-minute Movie, Outfest Fusion Film Festival, Los Angeles, California, 2016.
 Women's Semi-Professional, Full-Contact Football Player, Pittsburgh, Pennsylvania, 2005-2009;
 Washington, DC, 2014.