

# Cassandra McCall, Ph.D.

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## EDUCATION

**Ph.D. Engineering Education**, 2017 – Virginia Tech, Blacksburg, VA

Dissertation title: Advancing from Outsider to Insider: A Grounded Theory of Professional Identity Negotiation

**M.S. Civil Engineering**, 2011 – South Dakota School of Mines & Technology, Rapid City, SD

Thesis title: Meta-Analysis and Characterization of Faculty Mentoring Programs

Coursework Emphasis: Structural Engineering

**B.S. Civil Engineering**, 2009 – South Dakota School of Mines & Technology, Rapid City, SD

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## PROFESSIONAL EXPERIENCE

2020-Present: Assistant Professor, Engineering Education Department, Utah State University

2017-2020: Post-Doctoral Research Associate, Department of Engineering Education, Virginia Tech

2013-2017: Graduate Research and Teaching Assistant, Department of Engineering Education, Virginia Tech

2011-2013: Research Engineer II, Department of Industrial & Systems Engineering, South Dakota School of Mines & Technology

2009-2011: Graduate Research Assistant, Department of Civil and Environmental Engineering, South Dakota School of Mines & Technology

2008: Civil Engineering Intern, WLC Engineering, Gillette, WY

2007: Field Engineering Intern, South Dakota Department of Transportation, Regional Office, Pierre, SD

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## SCHOLARSHIP

### Publications

<sup>g</sup> indicates graduate student author

#### Refereed Journal Articles, forthcoming and in print

1. **McCall, C.**, McNair, L. D., & Simmons, D. R. (forthcoming). "Advancing from outsider to insider: A grounded theory of professional identity negotiation for undergraduate civil engineering." *Journal of Engineering Education*.
2. Secules, S., **McCall, C.**, Mejia, A., Beebe, C., Masters, A., and Svyantek, M. (forthcoming). Positionality practices and dimensions of impact on equity research: A collaborative inquiry and call to the community. *Journal of Engineering Education*.
3. Simmons, D. R., **McCall, C.**, & Clegorne, N. (2020). Leadership competencies for construction professionals as identified by construction industry executives. *Journal of Construction Engineering & Management*, 146(9). [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001903](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001903)
4. Clegorne, N., Simmons, D. R., & **McCall, C.** (2020). Leadership competencies for post-secondary engineering curricula: A delphi study of industry perspectives. *Journal of Leadership Studies*.
5. **McCall, C.**, Shew, A., Simmons, D. R., Paretto, M. C., & McNair, L. D. (2020). "Exploring student disability and professional identity: Navigating sociocultural expectations in U.S. undergraduate Civil Engineering programs." *Australasian Journal of Engineering Education*, 25(1), 79-89. <https://doi.org/10.1080/22054952.2020.1720434>
6. Masters, A.S., Foster, E.A., **Groen-McCall, C.**, McNair, L.D., & Riley, D. (2019). "Exploring liberatory makerspaces: Preliminary results and future directions," *Advances in Engineering Education*. Published Online: <https://advances.asee.org/exploring-liberatory-makerspaces-preliminary-results-and-future-directions/>
7. **Groen, C.**, Simmons, D. R., & Turner, M. (2018). Developing resilience in higher education: Experiencing and managing stress in a US undergraduate construction program. *Journal of Professional Issues in Engineering Education and Practice*, 145(2). [https://doi.org/10.1061/\(ASCE\)EI.1943-5541.0000407](https://doi.org/10.1061/(ASCE)EI.1943-5541.0000407)
8. Venters, C., **Groen, C.**, Paretto, M. C., & McNair, L. D. (2018). Using writing assignments to improve learning in statics: A mixed methods study. *International Journal of Engineering Education*, 34(1), 119-131.

9. **Groen, C.**, McNair, L. D., & Paretto, M. C. (2016). Prototypes and the politics of the artefact: visual explorations of design interactions in teaching spaces. *CoDesign: International Journal of CoCreation in Design and the Arts*, 12(1-2), 39-54. <https://doi.org/10.1080/15710882.2015.1110178>

#### Refereed Journal Articles, under review

1. **McCall, C.** & Edwards, C. (under review). New perspectives for implementing grounded theory. *Studies in Engineering Education*.
2. **McCall, C.**, Hermundstad-Nave, A., McNair, L. D., & Paretto, M. C. (under review). Identifying conceptual and procedural problem-solving indicators in student writing. *Journal of Engineering Education*.
3. Bae, H., Simmons, D. R., **McCall, C.**, and Polmear, M. (under review). Photo elicitation in construction engineering research: The value of coupling participants' inside perspectives with researchers' outside perspective. *Construction Management and Economics*.
4. Bae, H., Simmons, D. R., **McCall, C.** (under review). Building agency: Recruiting and retaining construction professionals in industry. *Engineering Project Organization Journal*.

#### Refereed Journal Articles, under development

1. **McCall, C.** & Shew, A. (under development). Let's abandon empathy ...and listen to people: Gimme back my shoes! *Engineering Studies*.
2. Zongrone, C.<sup>6</sup>, **McCall, C.**, & Paretto, M. C. (under development). Comparative snapshot coding: Considerations for promoting inclusive research practices in engineering education. *International Journal of Engineering Education*.

#### Refereed Conference Papers, forthcoming and in print

1. Begum Kali, M., Secules, S., & **McCall, C.** (forthcoming). Including Alice: Uncovering the narrative of one student's experience at the intersection of international student status and mental health [Paper presentation]. *Collaborative Network for Engineering and Computing Diversity (CoNECD) Conference*. Was to be held in Crystal City, VA, but convened virtually due to COVID-19.
2. Zongrone, C.<sup>6</sup>, **McCall, C.**, Paretto, M. C., Shew, A., Simmons, D. R., & McNair, L. D. (forthcoming). 'I'm looking at you, you're a perfectly good person...': Describing non-apparent disability in engineering [Paper presentation]. *Collaborative Network for Engineering and Computing Diversity (CoNECD) Conference*. Was to be held in Crystal City, VA, but convened virtually due to COVID-19.
3. **McCall, C.**, Paretto, M. C., Simmons, D. R., McNair, L. D., Zongrone, C.<sup>6</sup>, Shew, A. (2020). Leaving civil engineering: Examining the intersections of gender, disability, and professional identity. *Proceedings of the 2020 American Society for Engineering Education Annual Conference*. Was to be held in Montreal, Canada, but convened virtually due to COVID-19. <https://doi.org/10.18260/1-2--34906>
4. Bae, H., Simmons, D. R., & **McCall, C.** (2019). Construction companies as facilitators of satisfying work environment. *Proceedings of the Engineering Project Organization Conference: A Challenge Summit*, Vail, CO. \*paper invited for journal
5. Bae, H., **McCall, C.**, & Simmons, D.R. (2019). Investigating work, cultural, and life values of construction employees. *Proceedings of the Associated Schools of Construction: The Business of the Built Environment*, Denver, CO. <http://ascpro0.ascweb.org/archives/cd/2019/paper/CPRT352002019.pdf>
6. **Groen-McCall, C.**, McNair, L. D., Paretto, M. C., Shew, A., & Simmons, D. R. (2019). Exploring professional identity formation in undergraduate civil engineering students who experience disabilities: Establishing definitions of self. *Proceedings of the 2019 American Society for Engineering Education Annual Conference and Exposition*, Tampa, FL. <https://doi.org/10.18260/1-2--32170>
7. Secules, S. & **Groen-McCall, C.** (2019). To be or not to be: A dialogic discussion of two researchers' hidden and transitioning identities. *Proceedings of the 2019 Collaborative Network for Engineering and Computing Diversity Conference (CoNECD)*, Crystal City, VA. <https://peer.asee.org/31799>
8. **Groen-McCall, C.**, McNair, L. D., Paretto, M. C., Shew, A., & Simmons, D. R. (2018). Experiencing disability: A preliminary analysis of professional identity development in U.S. undergraduate civil engineering students. *Proceedings of the 2018 Australasian Engineering Education Conference*, Hamilton, New Zealand. [https://s3-us-west-2.amazonaws.com/18aaee/proceedings/AAEE18\\_Groen\\_8.pdf](https://s3-us-west-2.amazonaws.com/18aaee/proceedings/AAEE18_Groen_8.pdf) \*paper invited for journal
9. **Groen, C.**, McNair, L. D., Paretto, M. C., Simmons, D. R., & Shew, A. (2018). Exploring professional identity development in undergraduate civil engineering students who experience disabilities. *Proceedings of the 2018*

*American Society for Engineering Education Annual Conference and Exposition*, Salt Lake City, UT.  
<https://doi.org/10.18260/1-2--30052>

10. **Groen C.**, Simmons, D. R., Clegnorne, N. (2018). Work in progress: Faculty ways of knowing, valuing and assessing leadership in the engineering curriculum. *Proceedings of the 2018 American Society for Engineering Education Annual Conference and Exposition*, Salt Lake City, UT. <https://doi.org/10.18260/1-2--30513>
11. Agrawal, A., **Groen, C.**, Hermundstad-Nave, A., Paretto, M. C., McNair, L. D., & Martin, T. L. (2018). Overriding tradition? An initial exploration of the intersection of institutional and disciplinary cultures on student perceptions. *Proceedings of the 2018 American Society for Engineering Education Annual Conference and Exposition*, Salt Lake City, UT. <https://doi.org/10.18260/1-2--30853> \*nominated for Educational & Research Methods Division best paper award
12. Lutz, B., Brown, S., Adesope, O., Simmons, D. R., Hunsu, N., Ironside, A., & **Groen, C.** (2018). Measuring engineering students' in-class cognitive engagement: Survey development informed by contemporary educational theories. *Proceedings of the 2018 American Society for Engineering Education Annual Conference and Exposition*, Salt Lake City, UT. <https://doi.org/10.18260/1-2--30795>
13. **Groen, C.**, Paretto, M. C., McNair, L. D., Simmons, D. R., & Shew, A. (2018). Experiencing disability in undergraduate civil engineering education: An initial examination of the intersection of disability and professional identities. *Proceedings of the 2018 Collaborative Network for Engineering and Computing Diversity (CoNECD) Conference*, Crystal City, VA. <https://peer.asee.org/29536>
14. **Groen, C.**, Simmons, D. R., & McNair, L. D. (2017). An introduction to grounded theory: Choosing and implementing an emergent method. *Proceedings of the 2017 American Society for Engineering Education Annual Conference and Exposition*, Columbus, OH. <https://doi.org/10.18260/1-2--27582>
15. **Groen, C.**, & McNair, L. D. (2016). Work in progress: Developing a grounded theory of undergraduate civil engineering professional identity formation. *Proceedings of the 2016 ASEE/IEEE Frontiers in Education (FIE) Conference*, Erie, PA. <https://doi.org/10.1109/FIE.2016.7757585>
16. Goldberg, S. R., Rich, J., Masnick, A., Lutz, B., **Groen, C.**, Paretto, M. C., & McNair, L. D. (2016). Writing-to-learn exercises to improve student understanding and metacognition in an engineering statics course. *Proceedings of the 2016 American Society for Engineering Education Mid-Atlantic Section Conference*, New Orleans, LA.
17. **Groen, C.**, Simmons, D. R., & McNair, L. D. (2016). Disciplinary influences on the professional identity of civil engineering students: Starting the conversation. *Proceedings of the 2016 American Society for Engineering Education Annual Conference and Exposition*, New Orleans, LA. <https://doi.org/10.18260/p.26850>
18. Goldberg, S. R., Rich, J., Masnick, A., Paretto, M. C., **Groen, C.**, Lutz, B., & McNair, L. D. (2016). Examining students' metacognitive awareness through analysis of student-generated learning responses. *Proceedings of the 2016 American Society for Engineering Education Annual Conference and Exposition*, New Orleans, LA. <https://doi.org/10.18260/p.26795>
19. McNair, L. D., Paretto, M. C., & **Groen, C.** (2014). Learning and becoming in design reviews. *Proceedings of the 2014 Design Thinking and Research Symposium (DTRS 10)*, West Lafayette, IN.
20. **Groen, C.**, Karlin, J., James, L. E., Franz, P., Wiley, L., Kringen, M., Keiholtz, R., Leland, J., & Buse, T. (2012). Reinterpreting mentoring and culture: Layered structures for increased productivity. *Proceedings of the 2012 Industrial and Systems Engineering Research Conference*, Orlando, FL.
21. **Groen, C.**, Karlin, J., & Surovek, A. (2011). Intentions and expectations are not enough: The reality of organizational improvement and mentoring programs. *Proceedings of the 2011 American Society for Engineering Education Annual Conference and Exposition*, Vancouver, BC. <https://doi.org/10.18260/1-2--18293>
22. Surovek, A., Karlin, J., & **Groen, C.** (2010). Effective faculty mentoring for diversity: An assessment of mentoring paradigms. *Proceedings of the 2010 American Society for Engineering Education Annual Conference and Exposition*, Louisville, KY. <https://doi.org/10.18260/1-2--16133>

#### Refereed Conference Abstracts

1. **McCall, C.**, Paretto, M. C., & Simmons, D. R. (2019). Designing inclusive research studies in Engineering Education. *NSF Engineering Education and Centers Grantees Conference*, Arlington, VA.
2. **McCall, C.**, Pitterson, N., & Murzi, H. (2019). Inclusifying assessment: Critiquing, developing, and integrating assessment strategies using the UDL framework. *2019 Universal Design for Learning in Higher Education Conference*, East Hartford, CT.

3. Bae, H., Simmons, D.R., and **McCall, C.** (2019). Developing a conceptual model of construction employees' professional values. *Research in Engineering Education Symposium*, Cape Town, ZA.
4. **Groen-McCall, C.**, McNair, L. D., Paretti, M. C., Shew, A., & Simmons, D. R. (2019). Experiencing undergraduate civil engineering education: The professional identity formation of two autistic undergraduate civil engineering students. *Virginia Tech Autism Research Conference*, Blacksburg, VA.
5. **Groen, C.**, Paretti, M. C., & McNair, L. D. (2017). "Gender, communication, and identity in civil engineering. *Conference on College Composition and Communication*, Portland, OR.
6. **Groen, C.**, Karlin, J., & Surovek, A. (2011). Mentor training programs: Are effective mentors born or made? *2011 American Society for Engineering Education Rocky Mountain Section Meeting*. \*received best presentation award

#### Refereed Conference Papers, under review

1. Espinoza De Leon, J.<sup>6</sup>, McCall, C. (under review). Exploring methodological and quality implications of insider and outsider research: A systematic literature review. *American Society for Engineering Education Annual Conference and Exposition*.

#### Book Chapters, in print

1. **Groen, C.**, Gewirtz, C., Taiwo, A., Cranwell, L., & Younes, R. (2016). Creative ways of knowing and the future of engineering education. In D. Bairaktarova & M. Eodice (Eds.) *Creative Ways of Knowing in Engineering*. Springer.
2. **Groen, C.**, Paretti, M. C., & McNair, L. D. (2015). Learning from expert/student dialogue to enhance engineering design education. In R. Adams & A. Siddiqui (Eds.) *Design Review Conversations (Vol. 10)*. Purdue Publishing.

#### Book Chapters, under development

1. Creamer, E. G., Edwards, C. D., & **McCall, C.** (under development). Mixed methods grounded theory as an example of how a methodology can provide a guide for meaningful integration. C. Poth (Ed.) *The SAGE Handbook of Mixed Methods Research Design*, Sage.

#### Research Posters

1. **Groen, C.**, Richardson, K., Weaver, R., Seimetz-Wade, C., Ma, X., & Burge, P. (2015). Why do women persist? A phenomenological analysis of domestic and international female engineering students. *2015 Annual Conference on Higher Education and Pedagogy*, Blacksburg, VA.

#### Invited Speaker, Lectures, or Panelist

1. Invited Speaker, University of Tennessee, Knoxville, Delta Alpha Pi Honor Society and Student Disability Services Seminar. *Reconceptualizing disability: An interactive seminar centering multiple perspectives on disability at the University of Tennessee*. October 16, 2020, virtual presentation due to COVID-19.
2. Invited Speaker, Colorado School of Mines, Department of Geology and Geological Engineering Diversity, Inclusion, and Access Seminar Series. *Enhancing inclusion and improving access in the geosciences and geological engineering*. October 6, 2020, virtual presentation due to COVID-19.
3. Invited Speaker, Clemson University Engineering and Science Education Department Graduate Seminar Series. *'Unique and uniquely different' experiences of civil engineering students with disabilities: A grounded theory explanation of professional identity formation*. Clemson, SC. October 3, 2019. Clemson, SC.
4. Invited Workshop Facilitator, Leonhard Center Workshop Series. *The known unknowns of diversity and inclusion: Supporting individuals with hidden and transitioning identities*. [with Stephen Secules] September 19, 2019, State College, PA.
5. Invited Workshop Facilitator, Diversity Workshop Series, Swanson School of Engineering, University of Pittsburgh. *Reconceptualizing disability: An interactive workshop centering multiple perspectives on disability in engineering education*. October 18, 2018, Pittsburgh, PA.
6. Invited Panelist, American Society for Engineering Education Annual Conference and Exposition Student Division Panel Session. *Not a graduate student, but not yet a...: Navigating transient positions in engineering education*. June, 2018, Salt Lake City, UT

## Funding

### Funded

1. NSF Award entitled Professional Identity Development in Civil Engineering Students with Disabilities; Award Number: EEC Award #1733636. **McCall (PI)**; Award Amount: \$400,388.00 among investigators, co-PIs Lisa McNair, Marie Paretti, Ashley Shew, and Denise Simmons. Funding period: 9/1/175/30/21.

### Under Development

1. NSF BPE Proposal entitled Audio for Inclusion: Uncovering the Narrative of Minoritized Students to Provide Insight to Faculty on the Known Unknowns of Inclusion; **McCall (co-PI, 50% or \$187,500 est.)**; total budget \$375,000.00 (est.) among investigators – PI: Stephen Secules, Florida International University.
2. NSF IUSE HER Proposal entitled Developing Inclusive Assessment Strategies in 2<sup>nd</sup> Year Engineering Programs for Enhanced Retention; **McCall (PI)**; total budget \$300,000 (est.) among investigators – co-PIs: Wade Goodridge and Angie Minichiello, Utah State University.

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## TEACHING & ADVISING

### Utah State University

ENGR 2140: Mechanics of Materials (Spring 2021)  
EED 6090: Developing Engineering Education Curriculum (Spring 2021)

### Virginia Tech

ENGE 1216: Foundations in Engineering II  
ENGE 6714: Integrating Inductive Practice & Identity in Qualitative Research

### Online Course Modules

1. Module Designer & Co-Author, *Research quality and reproducibility: Mentoring for RQR*. Epegium Oxford University Press, October 2018. [co-authored with Jennifer Karlin]

### Teaching Professional Development

1. August 2020 – May 2021, ACUE Course in Effective Online Teaching Practices sponsored by Utah State University

### Current Graduate Students

#### Faculty Advisor

1. Jorge Espinoza De Leon, PhD Engineering Education Department, Utah State University

#### Committee Member

1. Mohammad Al Mestiraihi, PhD Engineering Education, Utah State University
2. Emily Burns, PhD Higher Education, Virginia Tech
3. Alice Fox, PhD Science and Technology Studies, Virginia Tech
4. Courtney Zongrone, PhD Counseling Education, Virginia Tech

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## SERVICE

### Professional Service

#### Journals

##### Reviewer:

1. Techné: Research in Philosophy and Technology
2. Journal of Civil Engineering Education (formerly: Journal of Professional Issues in Engineering Education and Practice, an ASCE Journal)
3. Co-Design, Studies in Engineering Education

#### 4. Journal of Engineering Education

#### Conferences

##### Division Leadership:

1. 2019 – Present, Bylaw Committee Co-Chair, American Society for Engineering Education Equity, Culture, & Social Justice in Education Constituent Committee
2. 2019, Organizing Committee Member, American Society for Engineering Education Equity, Culture, & Social Justice in Education Constituent Committee
3. 2016 – 2017, Immediate Past Division Chair, American Society for Engineering Education Student Division
4. 2015 – 2016, Division Chair, American Society for Engineering Education Student Division
5. 2014 – 2015, Program Chair, American Society for Engineering Education Student Division
6. 2014 – 2015, Treasurer, American Society for Engineering Education Virginia Tech Student Chapter
7. 2013 – 2014, Co-Program Chair, American Society for Engineering Education Student Division

##### Moderator:

1. Frontiers in Education Conference,
2. American Society for Engineering Education Annual Conference

##### Reviewer:

1. The Collaborative Network for Engineering and Computing Diversity (CoNECD)
2. Frontiers in Education Conference
3. Design Thinking and Research Symposium
4. American Society for Engineering Education Annual Conference

#### Funding Agencies

##### Proposal Reviewer:

1. National Science Foundation, Improving Undergraduate STEM Education, (IUSE: EHR)

#### Service Related to NSF-Funded Projects

1. Conference Evaluator, Research Integration of Early Findings from Institution Transformation Projects (NSF WIDER & IUSE), April 2016, Washington, D.C. (PI: Geoffrey Herman, co-PI: Jay Pembridge)
2. Student Mentor, iFixit Girls Day Camp: NSF ITEST Program, June 2016, Blacksburg, VA (PI: Jake Grohs, co-PI: Holly Matusovich)

#### Department Service

##### Virginia Tech

1. Mentor, Virginia Tech Department of Engineering Education Graduate Student Mentoring Program, August 2016 – May 2017, Blacksburg, VA
2. Student Panelist, Virginia Tech Graduate School College of Engineering Summer Bridge Program, *Getting started in graduate school*, August 2015, Blacksburg, VA

#### University Service

##### Virginia Tech

1. Host/Presenter, Chinese Embassy Delegation Visit to Virginia Tech, November 2016, Blacksburg, VA

#### Community Service & Outreach

1. Presenter, Virginia Tech Transportation Institute SmartRoad Tour and Seminar, *Future Careers in Engineering*. A seminar for local area low vision and blind high school students, August 2019, Blacksburg, VA.
2. Workshop Facilitator, "Lego language." A workshop for local area middle and elementary school students presented at the South Dakota School of Mines and Technology Engineers' Day, *Lego language*. Workshop for local area middle and elementary school students, October 2012, Rapid City, SD.

## **OTHER**

### **Member Organizations**

1. 2018 – 2020, Virginia Tech Disability Alliance and Caucus
2. 2009 – Present, American Society for Engineering Education
3. 2004 – 2010, American Society of Civil Engineers

### **Fellowships & Awards**

1. 2018, Australasian Association for Engineering Education Conference Best Paper Award
2. 2017, American Society for Engineering Education Student Division Outstanding Service Award
3. 2016, Virginia Tech Graduate School Featured Graduate Student
4. 2011, American Society for Engineering Education Rocky Mountain Regional Conference, Best Presentation
5. 2011, NASA South Dakota Space Grant Consortium Graduate Student Fellow