BAILEY M. BRAATEN

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EDUCATION

The Ohio State University, Columbus, OH August 2020
Ph.D. Teaching and Learning, STEM Education
Dissertation "Mathematical identities: Narratives and discourses of female students in 8th and 9th grade mathematics"

University of Cincinnati, Cincinnati, OH May 2013
Masters of Education, Curriculum and Instruction
Woodrow Wilson Foundation Teaching Fellow

Ohio Northern University, Ada, OH May 2010
Bachelor of Science, Mechanical Engineering
Minor, Applied Mathematics
Summa Cum Laude

TEACHING EXPERIENCE

The Ohio State University Columbus, OH
Lecturer August 2021 – Present
Fundamentals of Engineering (ENGR 1181) - AU 2021, AU 2022, AU 2023
- Collaborated with colleagues to develop curriculum and assessments.
- Led instructional team of graduate and undergraduate teaching assistants.

Fundamentals of Engineering (ENGR 1182) - SP 2022, SP 2023
- Collaborated with colleagues to develop curriculum and assessments.
- Led instructional team of graduate and undergraduate teaching assistants.

Fundamentals of Mathematics for Engineers (ENGR/MATH 1138) - AU 2023
- Collaborated with colleagues to develop curriculum and assessments.
- Led instructional team of undergraduate teaching assistants.

The Ohio State University Columbus, OH
Graduate Assistant August 2019 – May 2020
Student teaching field supervisor
- Observed and evaluated student teachers during their field experience.
- Provided feedback to students on their teaching during their field experience.
- Conducted recitations with students during their field experience.

The Ohio State University Columbus, OH
Guest Instructor October 2019
Science Methods for Middle School Educators

- Planned an integrated engineering and science methods lesson.
- Taught middle school science methods on engineering design process.
- Engaged students in hands-on lessons related to middle school science and engineering design

Granville High School Granville,OH
Secondary Mathematics Teacher 2015-2016
9th grade algebra, AP Calculus AB, AP Calculus BC

- Collaborated with colleagues to develop curriculum and common assessments.
- Rated skilled on 2015-16 Ohio Teacher Evaluation System.

Normandy High School Parma, OH
Secondary Mathematics Teacher 2012–2015
9th grade algebra, 11th grade algebra 2 part 1, 11th grade algebra 2, AP Calculus AB

- Led a workshop on rich mathematical tasks for 9-12 teachers through the Greater Cleveland Council of Teachers of Mathematics.
- Rated skilled on 2014-15 Ohio Teacher Evaluation System.
- Rated accomplished on 2013-14 Ohio Teacher Evaluation System.

PROFESSIONAL DEVELOPMENT FOR TEACHERS

Springfield City School District Springfield, OH
Workshop Leader November 2019
Integrated STEM Teaching (two 3-hour sessions)

- Facilitated sessions during district-wide professional development day
- Introduced concepts and strategies for creating integrated STEM lessons in k-12 classrooms

The Ohio State University Columbus, OH
Co-Facilitator June 2017
Incorporating computational thinking in mathematics through programming (five 6-hour sessions) *Assessing the Impact of Computer Modeling and Programming in Secondary Algebra* (Arnulfo Pérez, PI)

- Facilitated sessions during summer STEM+C Teacher Institute and professional development days.
- Introduced approaches to incorporating computational thinking in mathematics through programming microcontrollers.

The Ohio State University Columbus, OH
Workshop Leader June 2016
Incorporating computational thinking in mathematics through circuitry (five 6-hour sessions) *Assessing the Impact of Computer Modeling and Programming in Secondary Algebra* (Arnulfo Pérez, PI)

- Facilitated sessions during summer STEM+C Teacher Institute and professional development days.
- Introduced approaches to incorporating computational thinking in mathematics through Ohm's Law.
- Engaged participants in reflection on their own computational thinking and evolving pedagogical priorities

RESEARCH EXPERIENCE

The Ohio State University Columbus, OH
Postdoctoral Scholar August 2020 – Present
Engineering Students' Beliefs and Identities Across Institutionalized Educational Pathways (directed by Emily Dringenberg, funded by the NSF)

- Conducted research and data collection activities, including interviews, and surveys.
- Analyzed data using qualitative methods.
- Coauthored publications and presentations from the research project.

The Ohio State University Columbus, OH
Graduate Research Assistant January 2020 – August 2020
Engineering Students' Beliefs and Identities Across Institutionalized Educational Pathways (directed by Emily Dringenberg, funded by the NSF)

- Conducted research and data collection activities, including interviews, and surveys.
- Analyzed data using qualitative methods.
- Coauthored publications and presentations from the research project.

The Ohio State University Columbus, OH
Graduate Research Assistant January 2020 – May 2020
KEEN (directed by Monica Cox, funded by the Kern Family Foundation)

- Generated strategic plan for research and assessment.
- Summarized literature and managed references for publications.
- Reviewed and provided feedback on publications.

The Ohio State University Columbus, OH
Graduate Research Assistant May 2016 – August 2018
Assessing the Impact of Computer Modeling and Programming in Secondary Algebra
(directed by Arnulfo Pérez, funded by the NSF)

- Conducted field research and data collection activities, including clinical interviews, classroom observations, and field notes.
- Organized large data sets of video, audio, digital artifacts, and written documents.
- Transcribed videos and audio recordings from classroom observations and interviews.
- Analyzed data using qualitative methods including discourse analysis, case study, and ethnography.
- Coauthored publications and presentations from the research project.
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PUBLICATIONS

Wallwey, C., Dringenberg, E., **Braaten, B.,** Li, Y., Kajfez, R. (Under review). Engineering identity and smartness identity related to women's choices of engineering major. *IEEE Transactions on Education.*

Braaten, B., Dringenberg, E., Kramer, A., Kajfez, R. (2023). You're an engineer? You must be really smart! A theoretical discussion of the need to intergrate "smart" into engineering identity research. *Studies in Engineering Education.*

Pérez, A., **Braaten, B**., & MacConnell, R. (2019). Closing the circuit on function concepts. *Mathematics Teacher*.

CONFERENCE PROCEEDINGS

Kramer, A., Li, Y., **Braaten, B**., Kajfez, R., & Dringenberg, E. (2022, August). Engaging undergraduate researchers: Contextualizing beliefs and identities about smartness in engineering. In *2022 ASEE Annual Conference & Exposition*.

Kramer, A., **Braaten, B.**, Kajfez, R., Dringenberg, E. (2021). Who's Smarter? Beliefs about Smartness and Self-Identities Across Institutionalized Educational Pathways into Engineering. *Proceedings of the 2021 American Society of Engineering Education annual conference*. Virtual.

Braaten, B., Kramer, A., Henderson, E., Kajfez, R., Dringenberg, E. (2020). Accessing Complex Constructs: Refining and Interview Protocol. *Proceedings of the 2020 IEEE Frontiers in Education annual conference.* Virtual.

Braaten, B. (2019). Mathematical identities and gendered interactions in an 8th grade classroom. *Proceedings of the 41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1537-1540). St. Louis, MO.

Braaten, B. (2018). Mathematical identities: Narratives and discourses of female students in an 8th grade classroom. *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 954-957). Greenville, SC.

Braaten, B., & Pérez, A. (2017). Integrating STEM and computer science in algebra: Teachers' computational thinking dispositions. *Proceedings of the 2017 American Society of Engineering Education annual conference.* Columbus, OH.

Renganathan, S. M., Steward, C., Pérez, A., Rao, R. J., & **Braaten, B**. (2017). Preliminary results on an interactive learning tool for early algebra education. *Proceedings of the 2017 IEEE Frontiers in Education annual conference* (pp. 1-5). Indianapolis, IN.

Pérez, A., **Braaten, B**., & Myers, A (2016). Student reasoning with functions: Negotiating visual and analytic presentations. In M. B. Wood, E. E. Turner, M. Civil, & J.A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 119-201).Tucson, AZ: The University of Arizona.

CONFERENCE PRESENTATIONS

Aigner, B., **Braaten, B.,** & Bolognese, C., (2018). *To buy or not to buy: A study in gender-based marketing of STEM toys.* Presented at the 4th Gender and STEM Network conference. Eugene, OR.

Braaten, B., MacConnell, R., Perez, A., (2018). *Computational thinking, computer science, and mathematics: Mathematics students engage in programming*. Presented at the 20th Annual International Conference on Education. Athens, Greece.

Rao, R. J., Stewart, C., Pérez, A., Renganathan, S. M., & **Braaten, B**. (2017). *Assessing learning behavior and cognitive bias from weblogs*. Presented at the Association for Computing Machinery (ACM) Richard Tapia conference, Atlanta, GA.

Braaten, B. (2017). *"Why isn't working?" Analyzing STEM dispositions through discourse in an Algebra II classroom*. Discourse Analysis in Educational Research Conference. Bloomington, IN.

Pérez, A., Scharfenberger, A. & **Braaten, B**. (2017). *Teachers' engagement in computational thinking*. Presentation at the National Council of Teacher of Mathematics annual research conference, San Antonio, TX.

Pérez, A., Myers, A., Sanjari, A., & **Braaten, B**. (2016). Understanding algebra teachers' computational thinking. *Proceedings of the 13th International Congress on Mathematical Education*. Hamburg, Germany: Universität Hamburg.

DEPARTMENT SERVICE

- Student Instructional Leadership Team (SILT) Faculty advisor 2023-24
- Undergraduate Studies and Learning Infrastructure (USLI) Committee 2021-22, 2022-23, 2023-24
- Capital Resources and Employee Welfare (CREW) Committee 2020-21

PROFESSIONAL SERVICE

- Peer reviewer Journal for Research in Mathematics Education 2022
- Peer reviewer Studies in Engineering Education 2022
- Peer reviewer Frontiers in Education (FIE) 2020
- Peer reviewer Psychology of Mathematics Education-North American Chapter (PME-NA) 2019
- Peer reviewer Athens Journal of Education 2018

OTHER PROFESSIONAL ACTIVITIES

- Second-Year Transformational Experience Program (STEP) Faculty mentor 2023-24
- National Center for Faculty Development and Diversity (NCFDD) Write Now program participant spring 2021

PROFESSIONAL AFFILIATIONS

- National Council of Teachers of Mathematics (NCTM)
- Psychology of Mathematics Education-North American Chapter (PME-NA)
- American Society of Engineering Education (ASEE)

AWARDS AND HONORS

- 2018-2019 College of Education and Human Ecology Dissertation Fellowship recipient
- 2017 Richard Tapia Celebration of Diversity in Computing scholarship recipient, funded by the National Science Foundation
- Mortar Board National Honor Society
- Tau Beta Pi, engineering honorary
- Kappa Mu Epsilon, mathematics honorary