**Megan Botello**

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**Education**

Expected May 2026 **Ph.D., Education – Learning Sciences**

University of Delaware, School of Education

Secondary Specialization: Mathematics Education

Dissertation: *Boosting Math Mojo: The Impact of a Fraction Sense Intervention on Student Motivation*

Committee: Dr. Teomara Rutherford (chair), Dr. Nancy Jordan, Dr. Amanda Jansen, Dr. Jacquelynne Eccles

2021 – 2023 **M.A., Education**

University of Delaware, School of Education

2019 – 2021 **B.A., Psychology**

Nevada State University

Minor in Counseling

Mentor: Dr. Laura Naumann

2016 – 2018 **Associate of Science**

Southern Utah University

**Awards, Honors, and Scholarships**

2025 APA Division 15 Claire Ellen Weinstein Doctoral Student Seminar

2025 Awarded the APA Division 15 Dissertation Research Grant

2024 University of Delaware Graduate Student Travel Award

2021 Awarded 1st place for a research presentation at Nevada State University

2021 Awarded 3rd place for a research presentation at Nevada State University

2019 – 2020 President’s Honor List every semester at Nevada State University

2019 – 2020 Silver State Opportunity Grant (merit-based scholarship; 4 semesters)

2020 Barnes and Noble Scholarship

2019 Nevada State University General Scholarship

2019 – 2020 Nevada State Access Grant

2016 – 2020 President’s Scholarship

2016 – 2018 Regents Scholarship Award

2016 – 2017 Federal Supplemental Educational Opportunity Grant

2016 Utah Education Disadvantaged Scholarship

**Peer-reviewed Publications**

**Botello, M.,** Dyson, N., Rutherford, T., Jordan, N. (2025). Teachers' use of motivational messages while teaching fractions. *Elementary School Journal, 125*(4).

Jansen, A., **Botello, M**., & Silla, E. M. (2024). Rough draft math as an evolving practice: Incremental changes in mathematics teachers’ thinking and instruction. *Educational Sciences.*

Jordan, N. C., Dyson, N., Guba, T. P., **Botello, M**., Suchanec-Cooper, H., & May, H. (2024). Exploring the impact of a fraction sense intervention in authentic school environments: An initial investigation. *Journal of Experimental Child Psychology, 244,* 105954.

Rutherford, T., **Botello, M.**, Lam A., & Schenke, K. (2023). Cross-domain within- and between-students antecedents to help seeking. *Psychology in the Schools, 60*(11), 4497-4530

Jordan, N. C., Devlin, B. L., & **Botello, M**. (2022). Core foundations of early mathematics: Refining the number sense framework. *Current Opinion in Behavioral Sciences*, *46*, 101181.

**Manuscripts under review and in preparation**

Holzmann, K.J., **Botello, M.,** Guba, T.P., Jordan, N.C., Corso, L. (under review). Subdomains of Number Sense and Mathematical Performance of Brazilian Children: from Kindergarten to First Grade.

Miller-Cotto, D., Chawla, K., **Botello, M**., Barbieri, C. (under review). Meta-analysis on motivation and executive function relations. *Educational Psychologist.*

Jansen, A. & **Botello, M**. (under review). Textbook Remix: Rough Draft Math’s Version. *Mathematics Teacher: Learning and Teaching Pre-K–12.*

**Botello, M.,** Barbieri, C., Chawla, K., & McGinn, K.M. (in preparation). Elementary students' motivation for and attitudes toward mathematics while using example-based instructional tools.

Rutherford, T., & **Botello, M**. (in preparation). Supporting preservice teacher confidence in facilitating motivation with technology using an interactive ebook.

**Botello, M.** & Dyson, N. (in preparation). From struggle to success: Using motivation to transform fraction learning.

Silla, E. M., **Botello, M.,** Miller-Cotto, D., & Barbieri, C. A. (in preparation). From engagement to understanding: The role of motivation and beliefs in fraction learning [working title].

**PUBLISHED Proceedings**

Silla, E. M., **Botello, M**., Miller-Cotto, D., & Barbieri, C. A. (2025, October). From engagement to understanding: The role of motivation and beliefs in fraction learning. In X. Yao, A. McCloskey, R. M. Zbiek, & R. Martinez (Eds.), *Proceedings of the 47th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.* State College, PA: The Pennsylvania State University.

**Botello, M.** & Rutherford, T. (2023, June). Student help-seeking through utilization of professor office hours. In Blikstein P., Van Aalst, J., Kizito, R., & Brennan, K. (Eds.). (2023) *Proceedings of the 17th International Conference of the Learning Sciences – ICLS 2023.* (pp. 1850). Montreal, Canada: International Society of the Learning Sciences.

**Peer-reviewed Conference Presentations**

Guba, T. P., Anisobi, O., **Botello, M.**, Suchaned-Cooper, H., Dyson, N., Jordan, N.C. (2026, July). Computation in context: A comparison of fraction story problems and symbolic arithmetic. [Poster]. Proceedings Submission to CogSci 2025, San Francisco, CA.

Jansen, A., Acharya, S., Blewitt, B., **Botello, M.,** Silla, E., Barbieri, C., McLean, L. (2025, October). Investigating teachers' enactments and middle school experiences of rough draft math [Poster]. Annual meeting of the International Group for the Psychology of Mathematics Education (PME-NA), State College, PA, United States.

**Botello, M.,** Dyson, N., Jordan, N. (2025, October). Elevating Engagement: Teachers' Use of Motivational Messages While Teaching Fractions. [Poster]. National Council of Teachers of Mathematics, Atlanta, GA.

Jansen, A. & **Botello, M.** (2025, October). Using rough draft math as a curricular noticing lens. [Poster]. National Council of Teachers of Mathematics, Atlanta, GA.

Dyson, N., Suchanec-Cooper, H., Guba, T.P., **Botello, M.,** Jordan., N. (2025, October). How a racecourse and ruler build knowledge of fractions as numbers in 6th grade students with MLD. [Poster]. National Council of Teachers of Mathematics, Atlanta, GA.

**Botello, M.,** Rutherford, T., Jordan, N. (2025, August). Effects of a fraction sense intervention on sixth-grade students' self-efficacy in mathematics. [Poster]. American Psychological Association, Denver, CO.

Holzmann, K.J., **Botello, M.,** Guba, T.P., Jordan, N.C., & Corso, L. (2025, April). Subdomains of number sense and mathematical performance of brazilian children: from kindergarten to first grade. [Roundtable]. American Educational Research Association 2025, Denver, CO.

**Botello, M.,** Rodrigues, A., Ryan, S., Rutherford, T. (2025, April) The role of executive function in math and reading for English learner students. [Roundtable]. American Educational Research Association 2025, Denver, CO.

Jordan, N.C.**,**Dyson, N.**,**Guba, T. P., Suchanec, H., **Botello, M.** (2024, September). Evaluating a fraction sense intervention conducted by teachers in 6th grade math support classes. [Paper]. National Council for Teachers of Mathematics. Annual Meeting, Chicago, Illinois.

Dyson, N.**,**Jordan, N.C**.,**Guba, T. P., Suchanec, H., **Botello, M**. (2024, September). A fraction sense intervention grounded in principles from the science of learning for students with mathematical difficulties. [Paper]. Society for Research Effective Education, Baltimore, MD.

**Botello, M.,** Guba, T. P., Dyson N., Suchanec-Cooper, H., Rutherford, T., & Jordan, N. (2024, June). Assessing the impact of a fraction sense intervention on middle school students' achievement and motivation. [Paper]. The Mathematical Cognition and Learning Society, Washington D.C.

**Botello, M.,** Barbieri, C., & McGinn, K.M. (2024, April). Elementary students' motivation for and attitudes toward mathematics while using example-based instructional tools. [Poster]. American Educational Research Association 2024, Philadelphia, PA.

Chawla, K., **Botello, M.,** Shingledecker, M., Miller-Cotto, D., Barbieri, C. (2024, April). A meta-analysis exploring the relationship between motivation and executive function. [Lightning Talk]. American Educational Research Association 2024, Philadelphia, PA.

Guba, T. P., Dyson, N., **Botello, M**., Suchanec-Cooper, H., Jordan, N.C., & May, H. (2024, March). Fraction nonsense to fraction sense: impact of a fraction sense intervention on 6th grade students with math learning difficulties in an authentic classroom setting. [Poster]. Cognitive Development Society. 2024, Pasadena, CA.

Dyson, N., Guba, T. P., **Botello, M.**, Suchanec-Cooper, H., & Jordan, N. C. (2024, February). Using principles from the science of learning to develop fraction sense in struggling math students*.* [Workshop]. Association for Mathematics Teacher Educators. 2024, Orlando, FL.

Dyson, N., Guba, T. P., **Botello, M.**, Suchanec-Cooper, H., & Jordan, N. C. (2023, October). Building fraction sense in struggling students using effective approaches from the science of learning*.*[Workshop]. National Council for Mathematics. Teachers Research Conference 2023, Washington, DC.

**Botello, M.,** Rutherford, T., Guba, T.P., Dyson, N., Suchanec, H., Jordan, N. (2023, August). Teachers' use of motivational messages while teaching fractions [Poster]. American Psychological Association, Washington D.C.

**Botello, M.** (2023, June).College student help-seeking through utilization of professor office hours. [Poster]. Annual Meeting of the International Society of the Learning Sciences, Montreal, PQ.

**Botello, M.** (2023, May). Increasing students’ value for and performance in fractions through a utility value intervention [Poster]. Association for Psychological Science, Washington D.C.

VanGronigen, B. A., Meyers, C. V., & **Botello, M.** (2023, April) Professional learning for transformation? Educational leaders and a new teacher evaluation system [Paper]. American Educational Research Association 2023, Chicago, IL.

**Botello, M.,** Guba T.P., Dyson, N., Jordan, N. (2023, March). Measuring success: How 6th graders with math learning disabilities can learn to read rulers [Poster]. Society for Research in Child Development 2023, Salt Lake City, UT.

Dyson, N., Jordan, N., Suchanec, H., Guba, T., **Botello, M.** (2023) Building fraction knowledge in students who have fallen behind in math: Preliminary findings from an efficacy study [Paper]. Society for Research in Child Development 2023, Salt Lake City, UT.

**Botello, M.** (2023, February). Incorporation of growth mindset in statistic textbooks [Poster]. Research Council on Mathematics Learning 2023, Las Vegas, NV.

Duck, K., **Botello, M**., & Rutherford, T. (2022, August). Supporting preservice teacher confidence in facilitating motivation with technology using an interactive ebook [Poster]. American Psychological Association 2022, Minneapolis, MN.

**Botello, M**., Petras, R., Carrillo-Marroquin, A., Glover, M., Benson, W., & Naumann, L. P (2021, April). Gender differences in academic faculty workload [Poster]. Western Psychological Association 2021.

Carrillo-Marroquin, A., Glover, M., **Botello, M**., Petras, R., Benson, W., & Naumann, L. P (2021, April). Cultural differences in perceptions of organizational justice among academic faculty [Poster]. Western Psychological Association.

**Non-Peer-reviewed Conference Presentations**

Discussant for the Invited Speaker Session titled “Motivation in Education SIG In-Progress Research Event” (2025, April). American Educational Research Association, Dever, CO.

Silla, E.M. & **Botello, M.** Steele symposium. (2025, March). from engagement to understanding: the role of motivation and beliefs in fraction learning. [Paper]. Steele Symposium, University of Delaware.

Yourk, C., **Botello, M.** Guba., T.P., Suchanec, H., Dyson., N., Jordan, N.C. (2025, March). Believing and achieving: How self-efficacy impacts academic achievement for sixth grade students. [Poster]. Steele Symposium, University of Delaware.

Gonzales, J., Guba., T.P., **Botello, M.** Suchanec, H., Dyson., N., Jordan, N.C. (2025, March). Special education status and fractions skills. [Poster]. Steele Symposium, University of Delaware.

Damkser, J., Guba., T.P., **Botello, M.** Suchanec, H., Dyson., N., Jordan, N.C. (2025, March). The struggles of english language learners with fraction-based word problems. [Poster]. Steele Symposium, University of Delaware.

Wardwell, S., Mavroudakis, E., Guba., T.P., **Botello, M.** Suchanec, H., Dyson., N., Jordan, N.C. (2025, March). Working memory and fraction performance. [Poster]. Steele Symposium, University of Delaware.

Ashley, J., Christopherson., H, Guba., T.P., **Botello, M.** Suchanec, H., Dyson., N., Jordan,. N.C. (2025, March). Beyond the Ruler: Unveiling the nature of ruler mistakes in sixth grade students. [Poster]. Steele Symposium, University of Delaware.

Rivera, C., H, Guba., T.P., **Botello, M.** Suchanec, H., Dyson., N., Jordan,. N.C. Steele symposium. (2025, March). Examining errors made by sixth grade students when identifying operation in word problems. [Poster]. Steele Symposium, University of Delaware.

**Botello, M.** (2024, April) Elementary students' motivation for and attitudes toward mathematics while using example-based instructional tools. [Paper]. Steele Symposium, University of Delaware.

**Botello, M.,** Rutherford, T., Guba, T.P., Dyson, N., Suchanec, H., Jordan, N. (2023, April) Teachers' use of motivational messages while teaching fractions [Paper]. Steele Symposium, University of Delaware 2023.

**Botello, M**. (2021, May). what impacts math anxiety: Examining growth mindset, parental support, & teacher support. [Poster]. Nevada State University, Henderson, NV.

**Botello, M.,** Petras, R., Carrillo-Marroquin, A., Glover, M., Benson, W., & Naumann, L. P

(2021, May). Gender differences in academic faculty workload. [Poster]. Nevada State University, Henderson, NV.

Carrillo-Marroquin, A., Glover, M., **Botello, M**., Petras, R., Benson, W., & Naumann, L. P

(2021, May). Cultural differences in perceptions of organizational justice among academic

faculty. [Poster]. Nevada State University, Henderson, NV.

**Practitioner-focused professional learning**

Barbieri, C. A., **Botello, M,** Clerjuste, S., Silla, E. M.(2025, June). Working with worked examples in envision mathematics instruction [Interactive Session]. Presented at the Math enVision Summer Workshop, Newark, DE.

Dyson, N., Suchanec, H., **Botello, M.,** Guba, T. P., Jordan, N.C. (2024, November). Making sense of fractions [Webinar]. Evidencia en Acción (Evidence in Action). <https://tinyurl.com/bdfnsvsa>

Rutherford T., **Botello M**., & Duck., K. (2023, June). Supporting student motivation in online and technology contexts: An educational ebook. [Poster]. Annual Policy & Practice Institute: Delaware’s Conference on Public Education.

**Research Experience**

2021– Present ***Graduate Research Assistant***, University of Delaware

Math Sense Lab, Dr. Nancy Jordan

* Worked to develop an intervention for middle school students who struggle with fraction understanding, including piloting a survey measuring student motivation
* Aided in preparing many aspects of the intervention through PowerPoint lessons, iPad assessments, and teacher training materials.
* Duties include collecting data, overseeing undergraduate research assistants, presenting at conferences, and training teacher participants. Quantitatively and qualitatively collect, code, and interpret data, transcription, and research writing.
1. – Present ***Graduate Research Assistant,*** University of Delaware

Motivating Mathematics in the Middle Grades by Learning Through Rough Drafts and Revising, Dr. Amanda Jansen

* Material and survey development
* Contributed to the design phase and piloting of the project
* Led a team on observation work, focus groups, and motivation surveys
1. – Present ***Graduate Student Researcher,*** University of Delaware

 Rough Draft Math, Dr. Amanda Jansen

* Qualitative analysis of teacher interview data (transcription, memos, cross-memo analysis)
* Dissemination of findings through conference presentations and researcher and practitioner-facing journals
1. – Present ***Graduate Student Researcher,*** University of Delaware

 Mathematics, Motivation, and Methods (M3) Lab, Dr. Christina Barbieri

* Assisted in materials and study design focused on enhancing fraction materials with attentional supports and metacognitive scaffolds to support middle-schoolers’ fraction learning, engagement, and use of metacognitive strategies.
* Led analysis and dissemination of research findings on the motivation variables through a research manuscript and conference presentations
1. ***Graduate Student Researcher,*** University of Delaware

 The Rutherford Lab, Dr. Teomara Rutherford

* Research aimed to understand third grade student emotions and motivation as they engage with ST math, as well as how teacher practices in the classroom associate with student motivation.
* Conducted teacher observations in multiple elementary classrooms and data entry
1. ***Graduate Student Researcher,*** University of Delaware

Dr. Bryan VanGronigen

* Assisted in a professional learning initiative comprised of vendors offering services to prepare principals to give high-quality feedback to teachers.
* Synthesized literature to frame and substantiate the rationale for the study; organized data for analysis; devised coding schemes for data analysis; coded data qualitatively in NVivo; presented a conference proposal at AERA.
1. – 2021 ***Undergraduate Research Assistant,*** Nevada State University

Social Psychology Lab, Dr. Laura Naumann

* Investigated gender and racial differences in faculty service work and scholarly productivity among tenure-track faculty at NSU.
* Created and managed Qualtrics surveys, coded and interpreted qualitative data, presented at a national conference, conducted literature review for manuscript and grant proposal.

2020 ***Undergraduate Capstone Project,*** Nevada State University

*What Impacts Math Anxiety: Examining Growth Mindset, Parental*

*Support, & Teacher Support*

Research under the direction of Dr. Laura Naumann

* Conducted an independent research study examining how a growth mindset and positive parent/teacher interaction affect math anxiety, coordinated participant recruitment through multiple platforms, programmed online survey using Qualtrics software and analyzed data using SPSS, prepared, and presented findings through a national poster presentation.

**Teaching Experience**

Fall 2025 ***Instructor of Record for Developmental Psychology,*** University of Delaware

* Designed syllabus, planned lessons, designed materials and assessments, and led instruction and discussion facilitation for 35 undergraduate students
* Facilitated connection between students lived experiences, current events and moral issues, and course content on developmental theory in psychology throughout the lifespan.

Spring 2025 ***Instructor of Record for Human Development: Grades K-8,*** University of Delaware

* Designed syllabus, planned lessons, designed materials and assessments, and led instruction and discussion facilitation for 35 undergraduate preservice teachers
* Facilitated connection between preservice teachers’ field experiences and content learned in class through reflections and through mentorship activities

Spring 2025 ***Guest Lecturer for a different section of Human Development: Grades K-8,*** University of Delaware

* Taught one class focused on motivational theories and their application in schooling

Fall 2024 ***Teaching Assistant for Human Development: Grades K-8,*** University of Delaware

* Assisted in teaching and lecturing, mentoring, preparation of lectures and class activities, holding office hours
* Provided weekly feedback, grading, and assessment creation

Fall 2024 ***Guest Lecturer for Psych 230 Human Development,*** *University of Wisconsin – Eau Claire*

* Taught one class focused on motivational theories and their application in schooling

 ***Guest Lecturer for Psych260 Educational Psychology,*** *University of Wisconsin – Eau Claire*

* Taught two classes on Situated Expectancy-Value Theory and connecting theory to in-school learning

Spring 2024 ***Teaching Assistant for Developmental Psychology,*** University of Delaware

* Assisted in teaching, mentoring, and holding office hours for upper-level undergraduate students
* Managed Canvas; creating and grading quizzes; student communication

2019–2021 ***Course Assistant for Elementary Algebra,*** Nevada State College

Academic Success Center

* Created lesson plans for and facilitated supplemental instruction, developed trusting relationships with students, improved study skills, attended training on establishing peer mentor relationships, met with faculty to coordinate efforts, identified students of concern for possible intervention, increased first year retention by 30%, presented on student panel.

**Service to the Profession**

2025 Discussant for the Invited Speaker Session titled “Motivation in Education SIG In-Progress Research Event” (2025). American Educational Research Association, Dever, CO.

2025 Mathematical Thinking and Learning Ad-Hoc Journal Reviewer

2024 – present AERA Motivation SIG Communications Director, member of the Writing Group committee, Motivation Monday committee, and Research-in-Progress AERA event committee

2024 – 2025 University of Delaware Education Graduate Association Social Committee Chair

2023 – 2024 Learning Sciences Liaison, Delaware Day (Ph.D. Recruitment)

2024 Symposium Chair. A Socio-Cognitive Perspective to Mathematical Development Across the School Years: The Role of Learners’ Motivations and Attitudes Towards Mathematics. The Mathematical Cognition and Learning Society 2024, Washington D.C.

2024 Journal of Child Development Ad-Hoc Reviewer

2023 – 2024 University of Delaware Learning Sciences Brown Bag Coordination Committee

2022 – 2023 Annual Meeting of the International Society of the Learning Sciences

Reviewer

2020 – 2021 Officer in Nevada State University’s Psi Chi International Honor Society in Psychology

Advisor: Roberta Miranda, M.S.

* Facilitate bi-monthly meetings, plan and execute numerous club and community outreach events, member recruitment, hold induction ceremonies.

**Training & Professional development**

August 2025 ***APA Division 15 Claire Ellen Weinstein Doctoral Student Seminar***

* Received professional development related to developing an independent research program and academic job market preparation

June 2024  ***Innovative Teaching Strategies Course,*** University of Delaware

* Learned how to incorporate multimedia, assessment, and increase instructor presence and student engagement

**Professional Affiliations**

2022 – present American Educational Research Association – Motivation SIG; Div C; SSRL SIG

2022 – present American Psychological Association

2024 – present The Mathematical Cognition and Learning Society

2022 – 2023 International Society of the Learning Sciences

2022 – 2023 Association for Psychological Science

2022 – 2023 Research Council on Mathematical Learning

2022 – 2023 Society for Research in Child Development

2019 – 2020 International Honor Society of Psychology

2018 National Society of Collegiate Scholars

**Community Service**

2019 – Junior Achievement volunteer

2018 – Math and Science tutor at Cedar North, and Cedar East Elementary Schools

2018 – Volunteered 40 hours at Doctors’ Volunteer Clinic of St. George

**Technical Skills**

R and R Studio, Stata, SPSS, Qualtrics, NVivo, Google Drive (forms, sheets, docs, etc.), Canvas, Canva, Microsoft Suite

**Personal Accomplishments**

2019 – 2020 - President of the NSC Table Tennis Association

2019 – West Regional Women’s Table Tennis Champion

2019 – Registered Behavior Technician – The Lovaas Center