

CHRISTINA AREIZAGA BARBIERI

University of Delaware

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PROFESSIONAL POSITIONS

2018 – present Assistant Professor

Educational Statistics and Research Methods; Learning Sciences

Data Sciences Institute affiliate

School of Education, University of Delaware

2018 Research Scientist

Temple University

2015 – 2018 Institute of Education Sciences (IES) Postdoctoral Research Fellow

University of Delaware

EDUCATION AND TRAINING

2015 Ph.D., Educational Psychology, Temple University Advisor: Julie

L. Booth

2014 M.Ed., Educational Psychology, Temple University

2010 B.A., Psychology, *summa cum laude*, City University of New York (CUNY):

Lehman College

Advisor: Keith R. Happaney

POST-GRADUATE TRAINING IN ADVANCED QUANTITATIVE METHODS

Applied Bayesian Data Analysis, Instructor: Jeff Gill

Introduction to Item Response Theory (IRT), Instructor: Ji Seung Yang & Yang Liu

Introduction to Meta-analysis, Instructor: Joshua Polanin

Item Response Theory, Instructor: Tenko Raykov

Latent Class Analysis, Instructor: Stephanie Lanza

Latent Growth Curve Modeling, Instructor: Gregory Hancock

Longitudinal Data Analysis Using R, Instructor: Stephen Vaisey

Longitudinal Data Analysis Using SEM, Instructor: Paul Allison

Modern Meta-analysis, Instructors: Terri Pigott, Joshua Polanin, & Ryan Williams

Multilevel Modeling, Instructor: Laura Stapleton

Multilevel Structural Equation Modeling, Instructor: Kristopher Preacher

P propensity Score Methods, Instructors: Wei Pan, Haiyan Bai, Chris Swoboda

Statistics with R, Instructor: Andrew Miles

Structural Equation Modeling Part 2, Instructor: Paul Allison

EXTERNAL RESEARCH FUNDING (Past & Current)

Collaborative Research: Paving the Way for Fractions: Exploring foundational concepts in first grade. (\$1,959,760), Funded for 6/1/2020 – 5/31/2024. (NSF, EHR Core: 2000495. PI: Nancy C. Jordan; Co-PIs: Nora Newcombe & **Christina A. Barbieri**).

GeometryByExample: Developing an effective intervention for varied geometry content and learner characteristics (\$1,396,715), Funded for 7/1/2019 – 6/30/2022 [NCE to 6/30/2024] (IES, U.S. Dept. of Ed: R305A190126. PI: Julie L. Booth; Co-PIs: Suzanne Donovan, Kelly M. McGinn, Joel Schneider, & **Christina A. Barbieri**).

Opening the door to Algebra: Does improving fraction knowledge impact algebra learning? (\$1,301,369), Funded for 7/1/2017 – 6/30/2020 [NCE to 6/30/2021]. (IES, U.S. Dept. of Ed: R305A170226. PI: Julie L. Booth; Co-PIs: Kristie Newton, Laura Pendergast, & **Christina Barbieri**).

INTERNAL RESEARCH FUNDING (Past & Current)

Supporting Student Attention, Metacognition, and Mathematics Learning with the By Example Approach. (\$49,996), Funded for 6/1/2022 – 5/31/2024. University of Delaware Research Foundation (UDRF). (PI: **Christina Barbieri**).

Targeting Misconceptions to Improve Core Competencies for Students at Risk for Mathematics Difficulties. (\$15,000), Funded for 6/1/2020 – 5/31/2022. General University Research (GUR). (PI: **Christina Barbieri**).

PUBLICATIONS

* *Student collaborator*

PUBLISHED REFEREED JOURNAL ARTICLES

Silla, E. M.* , **Barbieri, C.A.**, & Newton, K.J. (2023). Procedural flexibility in fraction arithmetic and word problems predicts middle-schoolers' differential algebra skills. *Journal of Educational Psychology*.

Slicker, G., **Barbieri, C.A.**, & Hustedt, J. T. (2023). The Role of State Subsidy Policies in Early Education Programs' Decisions to Accept Subsidies: Evidence from Nationally Representative Data. *Early Education and Development*, 1-19.

Barbieri, C. A., & Silla, E. M.* (2023). Evoking Learning by Examples through Reducing Misconceptions and Highlighting Procedures. *The Journal of Experimental Education*, 1-24.

Barbieri, C.A., Miller-Cotto, D., Clerjuste, S.* , & Chawla, K.* (2023). A Meta-analysis on the worked examples effect on mathematics performance. *Educational Psychology Review*.

Barbieri, C.A., Booth, J.L., & Chawla, K.* (2023). Let's be rational: Worked examples supplemented textbooks improve pre-algebra students' conceptual and fraction magnitude knowledge. *Educational Psychology*.

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Shen, Y.*, Wang, R., Zhang, F.*, **Barbieri, C.A.**, & Pasquarella, A. (2022). The effect of early enrollment in dual-language immersion programs on children's English reading development: Findings from a 5-year longitudinal study. *International Journal of Bilingual Education and Bilingualism*.

Barbieri, C.A., Booth, J.L., Begolli, K.N., & McCann, N. (2021). The effect of worked examples on student learning and error anticipation in algebra. *Instructional Science*, 49, 419-439.

Barbieri, C.A., Young, L.K., Newton, K.J., & Booth, J.L. (2021). Predicting middle school profiles of algebra performance using fraction knowledge. *Child Development*, 92(5), 1984-2005.

Barbieri, C.A. & Miller-Cotto, D. (2021). Importance of adolescents' sense of belonging to mathematics for algebra learning. *Learning and Individual Differences*, 87.

Slicker, G.*, **Barbieri, C.A.**, Collier, Z., & Hustedt, J. (2021). Parental involvement during the Kindergarten transition and children's early reading and mathematics skills. *Early Childhood Research Quarterly*, 55, 363-376.

Barbieri, C. A., & Booth, J. L. (2020). Mistakes on display: Incorrect examples refine equation solving and algebraic feature knowledge. *Applied Cognitive Psychology*, 34(4), 862-878.

Barbieri, C.A., Rodrigues, J., Dyson, N., & Jordan, N.C. (2020). Improving fraction understanding in sixth graders with mathematics difficulties: Effects of a number line approach enhanced by cognitive learning strategies. *Journal of Educational Psychology*. 112(3), 628–648. <https://doi.org/10.1037/edu0000384>

Barbieri, C.A., Miller-Cotto, D., & Booth, J.L. (2019). Lessening the load of misconceptions: Design-based principles for algebra learning. *Journal of Learning Sciences*, 28(3), 381-417.

Resnick, I., Rinne, L., **Barbieri, C. A.**, & Jordan, N.C. (2019). Children's reasoning about decimals and its relation to fraction learning and mathematics achievement. *Journal of Educational Psychology*, 111(4), 604-618.

Dyson, N., Jordan, N.C., Rodrigues, J., **Barbieri, C.A.**, Rinne, L., (2018). A fraction sense intervention for students with or at risk for mathematics difficulties. *Remedial and Special Education*, 41(4), 244-254.

Barbieri, C. & Booth, J.L. (2016). Support for struggling students in algebra: Contributions of incorrect worked examples. *Learning and Individual Differences*

Differences, 48, 36-44.

O'Shea, A.M., Booth, J.L., **Barbieri, C.**, McGinn, K.M., Young, L.K., & Oyer, M.H.
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(2016). Algebra performance and motivation differences for students with learning disabilities and varying achievement levels, *Contemporary Educational Psychology*, 50, 80-96.

Booth, J.L., McGinn, K.M., Young, L.K., & **Barbieri, C.** (2015). Simple practice doesn't necessarily make perfect: Evidence from the worked example effect. *Policy Insights from Behavioral and Brain Sciences*, 2(1), 24-32.

Booth, J.L., Oyer, M.H., Paré-Blagoev, E.J., Elliot, A., **Barbieri, C.**, Augustine, A.A., & Koedinger, K.R. (2015). Learning algebra by example in real-world classrooms. *Journal of Research on Educational Effectiveness*, 8(4), 79-100.

Booth, J.L., **Barbieri, C.**, Eyer, F., & Paré-Blagoev, E.J. (2014). Persistent and pernicious errors in algebraic problem solving. *Journal of Problem Solving*, 7(1), 10-23.

PUBLISHED BOOK CHAPTERS & PRACTITIONER OUTLETS

deVries, K.J., Booth, J.L., Young, L.K., **Barbieri, C.A.**, Garfield, E.M., & Newton, K.J. (2022). Using worked examples as a scalable practice for teaching fraction magnitude and fraction computation. In *Mathematics as the Science of Patterns: Making the Invisible Visible through Teaching*.

Newton, K.J., **Barbieri, C.A.**, & Booth, J.L. (2020). *Key Mathematical Competencies from Arithmetic to Algebra*. In Oxford Research Encyclopedia of Education. Ed. Li-fang Zhand. New York: Oxford University Press.

Jordan, N.C., **Barbieri, C.A.**, Dyson, N., Devlin, B. (2020). Improving learning in students with mathematics difficulties: Contributions from the science of learning. In A.J. Martin, R.A. Sperling, & K.J. Newton (Eds.) *Handbook of Educational Psychology and Students with Special Needs*. NY: Routledge.

Jansen, A., Star, J.R., & **Barbieri, C.A.** (2019). Mathematics computation: Helping handout for teachers. In G. Bear & K. Minke (Eds.). *Helping Children Handouts: Prevention and Intervention Strategies for Common Concerns at School and Home*. National Association for School Psychologists (NASP).

Booth, J.L., McGinn, K.M., **Barbieri, C.**, & Young, L.K. (2017). Misconceptions and learning algebra. In S. Stewart (Ed.) *And the Rest is Just Algebra*.

Booth, J.L., McGinn, K.M., **Barbieri, C.**, Begolli, K., Chang, B, Miller-Cotto, D., Young, L.K., & Davenport, J.L. (2017). Evidence for cognitive science principles that impact learning in mathematics. In D.C. Geary & D. Berch, (Eds.)

MANUSCRIPTS UNDER REVIEW/IN REVISION

Barbieri, C.A., Gesuelli, K.A.* , Booth, J.L., & Young, L.K. (under review after revision). Individual Differences in Middle-School Students' Encoding of Algebraic Equations.

Barbieri, C.A., & Devlin, B.* (under review after second revision). Targeting fraction misconceptions and reducing high confidence errors in an online tutor.

Barbieri, C.A., Clerjuste, S.N.* , Silla, E.S.* , & Chawla, K.* (under review). Leveraging common mathematical errors to support understandings of equivalence and operations.

Chawla, K.* , **Barbieri, C.A.**, & Acharya, S.* (under review after second revision). Textbook analysis of high school geometry texts in the United States, Singapore, and India.

MANUSCRIPTS IN PREPARATION

Barbieri, C.A. & Rodrigues, J. (in prep). Leveraging cognitive load theory to support students with mathematics difficulty. To appear in Special Issue Educational psychology for all: Diversifying educational psychology research and theory by including students with disabilities, *Educational Psychologist*.

Gesuelli, K.A., Miller-Cotto, D., & **Barbieri, C.A.** (in prep). Examining the longitudinal stability of mathematics learning difficulties: A Latent transition. To appear in Special Issue Numerical and mathematical cognition: Branching out while remembering our roots, *Canadian Journal of Experimental Psychology*.

Harris-Thomas, B., Nicolai, K.* , Chen, X.* , & **Barbieri, C. A.** (in prep). Examining Black and Latine adolescents' sense of belonging within the mathematics classroom: A systematic review. To appear in Special Issue Perspectives on Current and Future Directions in School Belonging Research, *Educational Psychology Review*.

Silla, E.M.* , Newton, K.J., & **Barbieri, C.A.** (in prep). Examining profiles of flexibility and their relationship to algebraic readiness.

Clerjuste, S.N.* , **Barbieri, C.A.**, & Jansen, A. (in prep). The Unique and combined effects of feedback and revision on mathematics performance.

Guba, T.P.* , De Coteau, A.J.* , **Barbieri, C.A.**, Jansen, A., & Morris, A. (in prep). Revision thinking for fraction comparisons: An investigation of metacognitive monitoring in preservice teachers.

PUBLISHED CONFERENCE PROCEEDINGS

Corbett, N.*, Booth, J.L., **Barbieri, C.**, & Young, L.K. (2016, August 11). Exploring the relationship between adolescents' interest in algebra and procedural declines. In A. Papafragou, D. Grodner, D. Mirman, & J. Trueswell, J. (Eds.), *Proceedings of Christina Areizaga Barbieri 6*

the 38th Annual Conference of the Cognitive Science Society (pp. 592-595). Philadelphia, PA: Cognitive Science Society.

CONFERENCE PRESENTATIONS

* *Student collaborator*

Silla, E. M.*, Newton, K. J., & **Barbieri, C. A.** (accepted). *Using latent profile analysis to examine variability in procedural flexibility* [Research Report]. Accepted for presentation at the Annual Meeting of the National Council for Teachers of Mathematics (NCTM) Research Conference, Washington, D.C.

Silla, E. M.*, Morra, G.*, & **Barbieri, C. A.** (accepted). Learning from errors through one-on-one training for students at risk for mathematics learning disabilities. In H. Smith (Chair), *Incorporating Qualitative Data in Education Research: Across Contexts* [Symposium]. Accepted for presentation at the Northeastern Education Research Association Conference, Trumbull, CT.

Silla, E. M.*, Clerjoste, S. N.*, & **Barbieri, C. A.** (2023, June). *Cognitive science principles to support the teaching and learning of mathematics*. Poster presented at the Policy and Practice Institute 2023 Annual Meeting, Dover, DE.

Barbieri, C.A. & Silla, E.* (April 2023). *Evoking learning by examples through reducing misconceptions and highlighting procedures*. Presented at the American Educational Research Association (AERA) 2023 Annual Meeting, Chicago, IL.

Clerjoste, S.*, **Barbieri, C.A.**, Jansen, A., & McCoy, M.* (April 2023). *Opportunity to Revise: Effects of Corrective or Directive Feedback on Fraction Arithmetic Performance*. Presented at the American Educational Research Association (AERA) 2023 Annual Meeting, Chicago, IL.

Guba, T.P.*, De Coteau, A.*, **Barbieri, C.A.**, Jansen, A., & Morris, A.B., (April 2023). *Revision Thinking for Fraction Comparisons: An Investigation of Metacognitive Monitoring in Preservice Teachers*. Presented at the American Educational Research Association (AERA) 2023 Annual Meeting, Chicago, IL.

Miller-Cotto, D., **Barbieri, C.A.**, Clerjoste, S.*, Chawla, K.*, Le, P.H.*, DeLuca, L.*, & Landy, J.* (April 2023). *A Meta-Analysis Exploring the Effect of Worked Examples on Mathematics Performance*. Presented at the American Educational Research Association (AERA) 2023 Annual Meeting, Chicago, IL.

Silla, E. *, Barbieri, C.A., & Newton, K.J. (April 2023). *The Relationship between Procedural Flexibility with Fraction Arithmetic and Word Problems and Algebra Skills*. Presented at the American Educational Research Association (AERA) 2023 Annual Meeting, Chicago, IL.

Slicker, G., **Barbieri, C.A.**, & Hustedt, J. (April 2023). *What State-Level Policies Impact Early Education Centers' Enrollment of Children Using Subsidies? A Nationwide Investigation*. Presented at the American Educational Research Association (AERA) 2023 Annual Meeting, Chicago, IL.

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Chawla, K.* & **Barbieri, C.A.** (March 2023). *An international comparison of dimensional, contextual, and mathematical features and cognitive demands of High School Geometry texts*. Presented at the 2023 International Convention of Psychological Sciences, Brussels, Belgium.

Silla, E. M.* , **Barbieri, C. A.**, & Newton, K. (June 2022). *Arithmetic and word problem based procedural flexibility measures as predictors of middle-schoolers' differential algebra skills*. The 4th Annual Mathematics Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.

Clerjuste, S. N.* , Chawla, K.* , Miller-Cotto, D., **Barbieri, C.A.**, McKinney, G.* , & O'Neill, L.* (April 2022). *A Meta-analysis on the worked examples effect on mathematics performance*. 2022 Cognitive Development Society (CDS) Conference. Madison, WI.

Silla, E. M.* , & **Barbieri, C.A.** (April 2022). *Underlying mechanisms of benefits of varying worked example types on algebra learning*. The 2022 Cognitive Development Society (CDS) Biennial Meeting, Madison, WI.

Booth, J.L., **Barbieri, C.A.**, Young, L.K., & Newton, K. (September 2021). *Opening the door to algebra: Causal connections between fraction knowledge and algebra learning*. Presented at the Virtual symposium *Unpacking the Connections between Fractions Knowledge and Algebra*, Mathematical Cognition and Learning Society (MCLS).

Gesuelli, K.A.* , **Barbieri, C.A.**, Booth, J.L., & Young, L.K. (September 2021). *The development of middle-school students' encoding of algebraic equations*. Presented at the Virtual symposium *Unpacking the Connections between Fractions Knowledge and Algebra*, Mathematical Cognition and Learning Society (MCLS).

Chawla, K.* , Clerjuste, S.* , Miller-Cotto, D., **Barbieri, C.A.**, McKinney, G.* , & O'Neill, L.* (September 2021). *A Meta-analysis on the worked examples effect in mathematics*. Accepted for presentation at the Society for Research in Educational Effectiveness (SREE) 2021 Conference. Washington, D.C.

Clerjuste, S.* & **Barbieri, C.A.** (May 2021). *The unique and combined effects of feedback and revision on mathematics performance*. Accepted for presentation at the 2021 Association for Psychological Science (APS) Virtual Convention.

Barbieri, C.A. & Gaire, S.* (April 2021). *A Comparison of Problem-solving and Explanations when Learning from Errors*. Presented at the American Educational Research Association (AERA) 2021 Annual Meeting, Virtual.

Barbieri, C.A. & Miller-Cotto, D. (April 2021). *The Relationship between Adolescents' Sense of Belonging to Mathematics and Learning*. Presented at the American Educational Research Association (AERA) 2021 Annual Meeting, Virtual.

Barbieri, C.A. & Devlin, B.* (April 2021). *Reducing Mathematical Misconceptions through Cognitive Learning Principles*. Presented at the American Educational Research Association (AERA) 2021 Annual Meeting, Virtual.

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Devlin, B.*, **Barbieri, C.A.**, Glynn, A.*, Farinella, M.*, & Golinkoff, R.G. (April 2021). *Effects of Observing and Judging Mistakes on Preschoolers' Definitional Shape Knowledge*. Presented at the American Educational Research Association (AERA) 2021 Annual Meeting, Virtual.

Gesuelli, K.*, **Barbieri, C.A.**, & Booth, J.L. (April 2021). *Transitions in algebra problem representations: middle-schoolers' development in encoding equations*. Presented at the American Educational Research Association (AERA) 2021 Annual Meeting, Virtual.

Shen, Y.*, Wang, R., Zhang, F.*, **Barbieri, C. A.**, & Pasquarella, A. (April 2021). *The effect of first grade enrollment in dual-language immersion programs on children's reading growth over 5 years*. Presented at the American Educational Research Association (AERA) 2021 Annual Meeting, Virtual.

Devlin, B.* & **Barbieri, C.** (April 2021). *Comparing the effects of varied worked example types for teaching fraction equivalence*. Presented at the Society for Research in Child Development (SRCD) 2021 Biennial Meeting, virtual.

Gesuelli, K.*, **Barbieri, C.**, & Booth, J.L. (April 2021). *The role of fraction magnitude understanding in the development of encoding of algebraic equations*. Presented at the Society for Research in Child Development (SRCD) 2021 Biennial Meeting, virtual.

Slicker, G.*, **Barbieri, C.**, Collier, Z. & Hustedt, J. (April 2021). *Profiles of parent involvement during the Kindergarten transition and children's school readiness*. Presented at the Society for Research in Child Development (SRCD) 2021 Biennial Meeting, virtual.

Shen, Y.*, Wang, R., Zhang, F., **Barbieri, C. A.**, & Pasquarella, A (April 2021). *Differential effects of teacher judgment on students' reading trajectories between DLI and non-DLI students*. Presented at the Society for Research in Child Development (SRCD) 2021 Biennial Meeting, virtual.

Resnick, I., Rinne, L., **Barbieri, C.**, & Jordan, N. (April 2021). *Development of decimal magnitude understanding and its relation with fraction magnitude understanding and mathematics achievement*. Presented at the Society for Research in Child Development (SRCD) 2021 Biennial Meeting, virtual.

Barbieri, C.A., Gesuelli, K.*, Jansen, A. & Morris, A. (April 2020). *Preservice Teachers' Strategies for Detecting and Addressing Errors in Students' Fraction Comparison tasks*. Accepted for presentation at the American Educational Research Association (AERA) 2020 Annual Meeting, San Francisco, CA, cancelled due to pandemic.

Barbieri, C.A., Booth, J.L., Newton, K.J., & Pendergast, L. (April 2020). *The Relationship between Middle School Students' Fraction Understanding and Profiles of Algebraic Thinking*. Accepted for presentation at the American

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Educational Research Association (AERA) 2020 Annual Meeting, San Francisco, CA, cancelled due to pandemic.

Slicker, G.*, **Barbieri, C.A.**, & Collier, Z. (April 2020). *Parental Expectations and Involvement during the Transition to Kindergarten*. Accepted for presentation at the American Educational Research Association (AERA) 2020 Annual Meeting, San Francisco, CA, cancelled due to pandemic.

De Coteau, A.*, **Barbieri, C.A.**, Jansen, A., & Morris, A. (April 2020). *Preservice Teachers' Metacognitive Monitoring in revising their Explanations on Fraction Comparison Tasks*. Accepted for presentation at the American Educational Research Association (AERA) 2020 Annual Meeting, San Francisco, CA, cancelled due to pandemic.

Booth, J.L., **Barbieri, C.A.**, Newton, K.J., & Young, L.K. (January 2020). *Opening the door to algebra: Causal relations between fractions and algebra*. Presented at the Institute of Education Sciences (IES) Principal Investigators Meeting, Washington, DC.

Gesuelli, K.*, **Barbieri, C.A.**, Jansen, A., & Morris, A. (October 2019). *Detecting and addressing faulty reasoning about fraction magnitude*. The 2019 Cognitive Development Society (CDS) Biennial Meeting, Louisville, KY.

Barbieri, C.A., Booth, J.L., Newton, K.J., & Pendergast, L. (October 2019). *The Role of fraction understanding in middle school profiles of algebra learning*. The 2019 Cognitive Development Society (CDS) Biennial Meeting, Louisville, KY.

Devlin, B.* & **Barbieri, C.A.** (October 2019). *Student thinking evoked by number line representations of fraction magnitude*. The 2019 Cognitive Development Society (CDS) Biennial Meeting, Louisville, KY.

Booth, J.L., Newton, K.J., **Barbieri, C.A.** Young, L.K., & Hallinen, N. (July 2019). *Improving fraction knowledge to open the door to algebra*. The 41st Annual Meeting of the Cognitive Science Society (CogSci), Montreal, CN.

Barbieri, C.A., Miller-Cotto, D.A., & Booth, J.L. (April 2019). *Error prevalence and visual signaling cues: Design based principles for algebra learning*. American Educational Research Association (AERA) 2019 Annual Meeting, Toronto,

ON.

- Barbieri, C.A.**, Jansen, A., Morris, A.K., & Martin, C.P.* (April 2019). *Improving student explanations on fraction comparison tasks*. American Educational Research Association (AERA) 2019 Annual Meeting, Toronto, ON.
- Lange, K. E., **Barbieri, C. A.**, Booth, J. L., & Fukawa-Connelly, T. (April 2019). *Developing a positive error-climate: Action steps from research and practice*. 2019 National Council of Supervisors of Mathematics (NCSM) Annual Conference, San Diego, CA.
- Barbieri, C. A.** & Miller-Cotto, D. (March 2019). *The relationship between adolescents' sense of belonging to the mathematics community and algebra performance*. Christina Areizaga Barbieri 10
International Convention of Psychological Science (ICPS), Paris, France.
- Jordan, N.C., Dyson, N., **Barbieri, C.A.**, & Gesuelli, K. (March 2019). *Using different representational tools to develop fraction sense in struggling learners*. 2019 Society for Research in Child Development (SRCD) Biennial Meeting, Baltimore, MD.
- Gibbs, T.L., Booth, J.L., Newton, K.J., **Barbieri, C.A.**, & Pendergast, L. (February 2019). *Working memory and flexibility in middle school mathematics*. 2019 National Association of School Psychologists (NASP) Annual Convention, Atlanta, GA.
- Booth, J.L., Newton, K.J., Pendergast, L.L., & **Barbieri, C.** (June 2018). *Opening the door to algebra: The role of fraction knowledge in algebra learning*. 2018 International Society of the Learning Sciences (ICLS), London, UK.
- Barbieri, C.**, Jansen, A., & Morris, A.K. (April 2018). *Supports for pre-service teachers' revisions of mathematical explanations*. 2018 National Council of Teachers of Mathematics (NCTM) Research Conference, Washington, D.C.
- Barbieri, C.**, Jordan, N.C., & Booth, J.L. (April 2018). *Using learning principles to address fraction misconceptions*. 2018 American Educational Research Association (AERA) Annual Meeting, New York, NY.
- Miller-Cotto, D., **Barbieri, C.**, & Booth, J.L. (April 2018). *Examining the impact of signaling cues and self-explanations on algebraic knowledge and learning*. 2018 American Educational Research Association (AERA) Annual Meeting, New York, NY.
- Jordan, N.C., Dyson, N., **Barbieri, C.**, Rodrigues, J. (March 2018). *Effects of a number line approach for improving fraction understanding in students with math disabilities*. The 1st Mathematical Cognition and Learning Society (MCLS) Conference, Oxford, UK.
- Barbieri, C.**, Golinkoff, R.M., Devlin, B. (March 2018). *Guided play: The effect of*

learning from mistakes on preschoolers' shape knowledge. 2018 Eastern Psychological Association (EPA) Annual Meeting, Philadelphia, PA.

Devlin, B., Beliakoff, A., **Barbieri, C.**, Klein, A., Jordan, N.C. (October 2017). *Demographic differences in early number competencies: Effects of gender and income status.* 2017 Cognitive Development Society (CDS) Biennial Meeting; Portland, OR.

Barbieri, C., Jordan, N.C., Dyson, N., & Rodrigues, J. (October 2017). *Using principles from cognition and learning to develop fraction knowledge in struggling middle schoolers.* 2017 Cognitive Development Society (CDS) Biennial Meeting, Portland, OR.

Barbieri, C., Zimmermann, L., Shirilla, M. & Golinkoff, R.M. (August 2017). *The right kind of wrong: Learning from errors through guided play.* 2017 American Psychological Association (APA) Annual Convention, Washington, D.C.
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kind of wrong: Learning from errors through guided play. 2017 American Psychological Association (APA) Annual Convention, Washington, D.C.

Barbieri, C., Shirilla, M., Zimmermann, L. & Golinkoff, R.M. (June 2017). *Exploring the effective features of guided play: Explanations and embodiment.* Mini conference on Playful Learning, Philadelphia, PA.

Rodrigues, J., Dyson, N., **Barbieri, C.**, Jordan, N. C., & Rinne, L. (May 2017). *Supporting fraction sense: An intervention for sixth-grade students with or at risk for mathematics difficulties.* Mathematical Cognition and Learning Society (MCLS): Formal and Informal Instructional Influences and Interventions, Nashville, TN.

Barbieri, C., Booth, J.L., & Jordan, N.J. (April 2017). *The effects of incorrect worked examples on students' misconceptions and learning of mathematical content.* 2017 Society for Research in Child Development (SRCD) Biennial Meeting, Austin, TX.

Barbieri, C., & Booth, J.L. (April 2017). *Compensating for students' low conceptual and fraction magnitude knowledge with worked examples.* 2017 Society for Research in Child Development (SRCD) Biennial Meeting, Austin, TX.

Resnick, I., **Barbieri, C.**, Rinne, L., Hurwitz, A., & Jordan, N.J. (April 2017). *Relation between decimal and fractions understanding, and the role of magnitude understanding in overall mathematics achievement.* 2017 Society for Research in Child Development (SRCD) Biennial Meeting, Austin, TX.

Dyson, N., Rodrigues, J., **Barbieri, C.**, & Jordan, N.J. (April 2017). *A Fraction Sense Intervention for Middle School Students with Mathematics Difficulties.* 2017 Society for Research in Child Development (SRCD) Biennial Meeting, Austin, TX.

Barbieri, C. (December 2016). *The effects of incorrect worked examples on students' algebra learning.* Institute of Education Sciences (IES) 2016 Principal

Investigators meeting, Washington, D.C.

Corbett, N., Booth, J.L., **Barbieri, C.**, & Young, L.K. (August 2016). *Exploring the relationship between adolescents' interest in algebra and procedural declines*. 38th Annual Conference of the Cognitive Science Society, Philadelphia, PA.

Miller-Cotto, D.A., **Barbieri, C.**, & Booth, J.L. (May 2016). *Increasing spatial contiguity to reduce students' misconceptions in algebra*. 2016 Math Cognition Conference, Fort Worth, TX.

Barbieri, C., & Booth, J.L. (April 2016). *The effects of an error reflection intervention on algebra learning*. 2016 Bringing Cognitive Science Research to the Classroom conference, Arlington, VA.

Resnick, I., **Barbieri, C.**, Rinne, L., Hurwitz, A., & Jordan, N.C. (April 2016). *The role of decimal understanding in fractions understanding and overall mathematics achievement*. Christina Areizaga Barbieri 12

2016 Bringing Cognitive Science Research to the Classroom conference, Arlington, VA.

Barbieri, C., & Booth, J.L. (April 2016). *The effects of promoting error reflection on algebra learning*. 2016 meeting of the American Educational Research Association (AERA), Washington, D.C.

Barbieri, C., & Booth, J.L. (April 2016). *The relationship between fraction magnitude knowledge and pre-algebra learning*. 2016 meeting of the American Educational Research Association (AERA), Washington, D.C.

Barbieri, C., McGinn, K., Booth, J.L. (April 2016). *Errors as predictors of algebra learning*. 2016 meeting of the American Educational Research Association (AERA), Washington, D.C.

McGinn, K., **Barbieri, C.**, & Booth, J.L. (April 2016). *Strategically determining type of example presented to student based on target algebraic misconception*. 2016 meeting of the American Educational Research Association (AERA), Washington, D.C.

Barbieri, C. (March 2016). *Sense of belonging to mathematics predicts adolescent algebra learning*. 2016 Annual Eastern State Psychological Association (EPA) Conference, New York, NY.

Barbieri, C. & Booth, J.L. (October 2015). *The effects of error reflection on middle school students' algebra learning*. 2015 Cognitive Development Society (CDS) Biennial Meeting, Columbus, OH.

McGinn, K.M., Booth, J.L., & **Barbieri, C.** (March 2015). *Reducing algebraic misconceptions and errors through the use of correct and incorrect worked examples*. 2015 Society for Research in Child Development (SRCD) Biennial Meeting, Philadelphia, PA.

Barbieri, C. (March 2015). *The relationship between inference instruction, math self concept, and adolescent math achievement*. 2015 Annual Eastern State Psychological Association (EPA) Conference, Philadelphia, PA.

Barbieri, C. & Booth, J.L. (April 2014). *Compensating for perceived competence by learning from errors*. 2014 meeting of the American Educational Research Association (AERA), Philadelphia, PA.

Barbieri, C. & Booth, J.L. (April 2013). *Influence of fraction magnitude knowledge and worked examples on arithmetic with fractions, decimals, and percents*. 2013 Society for Research in Child Development (SRCD) Biennial Meeting, Seattle, WA.

Barbieri, C. & Booth, J.L. (March 2013). *Influence of fraction magnitude knowledge and worked examples on arithmetic with fractions, decimals, and percents*. 2013 Eastern Psychological Association (EPA) Conference, New York, NY.

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Prohaska, V., **Barbieri, C.**, Miller, D., Monforte, P., & Orengo, D. (March 2010). *Group quizzes: Two heads are not always better than one*. 2010 Eastern Psychological Association (EPA) Conference, Cambridge, MA.

Barbieri, C. & Happaney, K. (March 2010). *Contribution of working memory and inhibition on comprehension of aural vs. printed reading material*. 2010 Eastern Psychological Association Conference, Brooklyn, NY.

INVITED (EXTERNAL) TALKS

Barbieri, C.A. (May 2021). *Individual differences and differential outcomes of learning from errors in mathematics*. The Human Development and Quantitative Methodology Developmental Science Program Colloquium Series, University of Maryland.

Barbieri, C.A. (September 2020). *Leveraging errors to refine mathematical problem solving and generate learning*. Cognitive and Cognitive Neuroscience/Developmental Brownbag Series, University of Wisconsin Madison.

DEPARTMENTAL (INTERNAL) TALKS

Barbieri, C. (December 2016). *The use of error reflection to reduce mathematical misconceptions*. Cognitive Brown Bag series, University of Delaware.

Barbieri, C. (December 2016). *Learning from errors: Using mistakes to promote math learning*. Learning Sciences Brown Bag series, University of Delaware.

AWARDS AND HONORS

2023 School of Education Distinguished Scholar Award, University of Delaware

RESEARCH TRAINING EXPERIENCES

2018 Research Scientist, Temple University; PI: Julie L. Booth; Co-PIs: Kristie J. Newton,
Laura Prendergast, & Christina Barbieri

IES Grant: *Opening the door to Algebra: Does improving facets of fraction
knowledge impact algebra learning?*

2015 – 2018 IES Postdoctoral Research Fellow, University of Delaware; PIs: Nancy C. Jordan,
Roberta M. Golinkoff, and Henry May

2011 – 2015 Graduate Research Assistant, Temple University; Advisor: Julie L. Booth

2010 – 2011 Research Assistant, CUNY: Lehman College; Advisor: Vincent Prohaska

2009 – 2011 Lab Manager, CUNY: Lehman College; PI: Keith R. Happaney

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UNIVERSITY TEACHING EXPERIENCE

UNIVERSITY OF DELAWARE

EDUC 856 Introduction to Statistical Inference (Spring 2022, Spring 2023) EDUC 844 (867)

Intermediate ANOVA and Regression (Fall 2019, Fall 2021, Fall 2023) EDUC 884 (867)

Advanced Research Design for Causal Inference (Spring 2019, Spring 2020)

EDUC 205 Human Development, K-8 (Fall 2018, Spring 2019, Fall 2019, Fall 2022, Spring
2023, Fall 2023)

TEMPLE UNIVERSITY

Cognition and Learning in the Classroom, *Online*, Instructor of Record, Fall 2014

Intermediate Statistics, Teaching Apprentice, Spring 2014 (Instructor: Jennifer G. Cromley)

Multivariate Statistical Analysis, Course Developer, Summer 2013 (Instructor: Jennifer G.
Cromley)

PROFESSIONAL EXPERIENCE

2010 – 2014 Evaluation and Assessment Analyst, Safe Horizon New York State Forensic
Interviewing Best Practice Project

2011 Assessment Developer, Transfer Student Coaching Program, City University of
New York: Lehman College

NATIONAL AND INTERNATIONAL SERVICE

EDITORIAL BOARD MEMBER

The Journal of Educational Psychology

The Journal of Experimental Education

AD HOC REVIEWER

Child Development

Cognitive Research: Principles and Implications

Cognitive Science

The Journal of Cognition and Development

The Journal of Numerical Cognition

Learning and Individual Differences

Learning and Instruction

Developmental Psychology

Educational Psychology

The Journal of Learning and Individual Differences

The Journal of Research in Mathematics Education

The Journal of Problem Solving

Journal of Educational Research

OTHER SERVICE TO THE FIELD

Principle Member, *Institute of Education Science's (IES) Science, Technology, Engineering, and*
Christina Areizaga Barbieri 15

Mathematics (STEM) Education Research Peer Review Panel (10/1/20 – 9/30/25).

Conference reviewer

2022 *American Educational Research Association (AERA) Annual Meeting*; reviews for
Division C and Learning Sciences SIG

Grant proposal reviewer (Ad-hoc)

2020 *Institutes of Education Sciences (IES) Science Technology Engineering and*
Mathematics (STEM) scientific peer review panel (February 2020).

Symposium organizer and Co-chair

2019 *International Convention of Psychological Sciences, Symposium (March 2019):*
Cross-cultural Factors Relating to the Mathematical Cognition of Diverse Populations
Across the Globe.

Conference reviewer

2018 *National Association of Teachers of Mathematics Research Conference*

Symposium organizer and Co-chair

2017 *Cognitive Development Society Biennial Meeting, Symposium: Usable Knowledge*
for Improving Mathematics Learning: Bridging Research in Cognition and Development
with Educational Practice in Diverse Contexts

Conference reviewer

2015 *Society for Research in Child Development Biennial Meeting*

UNIVERSITY SERVICE

PhD Core Committee (2022 – present)

Committee on Graduate Studies in Education (CGSE; 2020 – 2022)

College Undergraduate Committee (CUC; 2019-2020)

Committee on Undergraduate Studies in Education (CUSE; 2018-2019)

Panelist (April 2021). University of Delaware's Womxn of Color Panel Discussion: *Work/Life Boundaries*

Speaker (August 2020). University of Delaware's Undergraduate Research Scholars Summer Talk Series: *Studying errors and targeting misconceptions to improve mathematics learning.*

Speaker (May 2020). HDFS Graduate Student Brown Bag Series: *Deconstructing a Manuscript.*

MENTORING

PhD Dissertation Committees as Member: Rui Wang (SOE-ESRM), Brianna Devlin (SOE Learning Sciences), Gerilyn Slicker (HDFS), Haobai Zhang (SOE-Learning Sciences) **Doctoral**

Student Advisees: Sarah Clerjuste (SOE-ESRM), Kamal Chawla (SOE-ESRM), Elena Silla (SOE-Learning Sciences)

External Awards of Mentored Doctoral Students: Sarah Clerjuste (NSF GRFP Award 2022)
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Undergraduate Research Mentorship: Faculty research advisor to undergraduate researchers through the University of Delaware Research Apprenticeship Work-Study (UDRAW) program, the School of Education Research Apprenticeship Program (URAP), and the Summer Opportunities for Undergraduate Research and Creative Endeavors (SOURCE) program

PROFESSIONAL AFFILIATIONS

American Educational Research Association (AERA)
Association for Psychological Science (APS)
Cognitive Development Society (CDS)
Eastern Psychological Association (EPA)
National Council of Teachers of Mathematics (NCTM)
Society for Research in Child Development (SRCD)