

Alexandria A. Viegut, M.S.

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EDUCATION

- In Progress Ph.D. in Educational Psychology
Expected May 2022 University of Wisconsin – Madison
Thesis: *Measuring and Supporting Proportional Reasoning: An Interdisciplinary Approach*
Committee: Percival Matthews (chair), Martha Alibali, Ana Stephens, Edward Hubbard
- 2019 M.S. in Educational Psychology
Graduate Minor in Quantitative Methods for Education Sciences
University of Wisconsin – Madison
Thesis: *From Number Sense to Fraction Sense: Using Analogy to Improve Fraction Understanding*
Committee: Percival Matthews, Martha Alibali, Edward Hubbard
- 2017 B.A. in Psychology, summa cum laude
University of Notre Dame
Honors Thesis: *Can finger gesture help preschool children understand cardinality?*
Advisor: Dr. Nicole McNeil

RESEARCH INTERESTS

Mathematical cognition and learning, including the role of different visual representations of math concepts and the use of intuitive and informal knowledge for formal learning. Dissertation work focuses on the measurement of fractions knowledge and connections between fractions and algebra. Bridging cognitive developmental psychology with education.

FELLOWSHIPS, HONORS, AND AWARDS

- 2020 Madison Education Partnership Graduate Research Scholar
2020 Invited participant at AERA-NSF Institute on Statistical Analysis for Early Math Education
2017-present Interdisciplinary Training Fellowship in Education Sciences, Wisconsin Center for Education Research, University of Wisconsin – Madison
2017 Phi Beta Kappa, University of Notre Dame
2013-2017 Glynn Family Honors Program, University of Notre Dame
2013-2017 National Merit Scholarship

PUBLICATIONS

- Park, Y., **Viegut, A. A.**, Matthews, P. G. (2020). More than the sum of its parts: Exploring the development of ratio magnitude vs. simple magnitude perception. *Developmental Science*, e13043. <https://doi.org/10.1111/desc.13043>
- Viegut, A.A.** (under review). Causal pathways from fraction knowledge to algebra: Integrating psychology and math education perspectives.
- Viegut, A. A.**, Matthews, P. G. (in preparation). From number sense to fraction sense: using analogy to improve fraction estimation.
- Viegut, A. A.** & Matthews, P. G. (in preparation). Cross-format comparison and estimation of nonsymbolic ratios.
- Viegut, A. A.**, Donovan, A. M., Brown, S. A., Matthews, P. G., Alibali, M. W. (in preparation). Gesture and strategy use in nonsymbolic and symbolic fraction comparison.

CONFERENCE PRESENTATIONS

Symposia Organized at Peer-Reviewed Conferences:

- Viegut, A. A.**, Booth, J. L., Gesuelli, K., Jay, V. (September, 2021). *Unpacking the Connections between Fractions and Algebra Knowledge*. Symposium organized at Math Cognition and Learning Society conference, online.
- Viegut, A. A.**, Tian, J., McMullen, J., Jordan, N. C. (December, 2020). *Fraction Interventions from Lab to Classroom*. Symposium organized at Mathematics Cognition and Learning Society Conference, online.

Presentations at Peer-Reviewed Conference:

- Viegut, A. A.** (September, 2021) Building a more nuanced theory of the fractions-algebra connection: Insights from math education research. Talk presented at Math Cognition and Learning Society conference, online.
- Viegut, A. A.**, Donovan, A. M., Brown, S. A., Matthews, P. G., Alibali, M. W. (April, 2021). Gesture and strategy use in nonsymbolic and symbolic fraction comparison. Talk presented at American Educational Research Association Conference, online.
- Viegut, A. A.**, Park, Y., Hubbard, E. M., Matthews, P. G. (April, 2021). Fraction estimation predicts later calculation, but not fluency: A cross-sequential study of primary school children. Poster presented at Society for Research in Child Development Conference, online.

- Viegut, A. A. & Matthews, P. G.** (December, 2020). Using analogy to improve fraction understanding. Talk presented at Mathematics Cognition and Learning Society Conference, online.
- Viegut, A. A.,** Donovan, A. M., Brown, S. A., Matthews, P. G., Alibali, M. W. (October, 2020). *Gesture use in a nonsymbolic and symbolic fraction comparison task*. Poster presented as a GIF at Mathematics Cognition and Learning Society Conference, online.
- Viegut, A. A. & Matthews, P. G.** (June, 2019). *Modeling median estimates overstates regularity in children's number line estimation*. Poster presented at Mathematics Cognition and Learning Society Conference, Ottawa, Canada.
- Viegut, A. A.,** Park, Y., Matthews, P. G. (March, 2019). *Number line estimation is more than numerical: Evidence from nonstandard number lines*. Poster presented at Society for Research in Child Development Conference, Baltimore, MD.
- Park, Y., **Viegut, A. A.,** Matthews, P. G. (March, 2019). *The development of multiple non-symbolic ratio representations in children*. Poster presented at Society for Research in Child Development Conference, Baltimore, MD.
- Viegut, A. A.,** Park, Y., Hubbard, E. M., & Matthews, P. G. (September, 2018). *Differential improvement in fraction estimation in 2nd vs. 5th grade children: Longitudinal analysis*. Poster presented at International Mind, Brain, and Education Society Conference, Los Angeles, CA.
- McNeil, N. M., O' Rear, C. D., Petersen, L. A., **Viegut, A. A.,** Bohnsack, A. E., & Boehm, A. (October, 2017). *Translating cognitive developmental theory to improve children's understanding of counting*. Talk presented at Cognitive Development Society Conference, Portland, OR.

Non-Refereed Regional Conference Presentations:

- Viegut, A. A.,** Matthews, P. G. (September, 2018). *Cross-format productions of symbolic and nonsymbolic ratios: Toward a perceptual intervention for fraction learning*. Poster presented at First Year Project Symposium, University of Wisconsin – Madison, Madison, WI.
- Viegut, A. A.,** McNeil, N. M. (May, 2017). *Can finger gesture help preschool children understand cardinality?* Paper presented at Undergraduate Research Symposium, University of Notre Dame, South Bend, IN.

PROFESSIONAL SOCIETY MEMBERSHIPS

American Educational Research Association (AERA)
Cognitive Science Society (CSS)
International Mind, Brain, and Education Society (IMBES)

Mathematical Cognition and Learning Society (MCLS)
Phi Beta Kappa
Society for Research in Child Development (SRCD)

TEACHING EXPERIENCE

Courses Taught

Human Development: Childhood to Adolescence
University of Wisconsin-Madison, Fall 2021 (in-person lectures)
University of Wisconsin-Madison, Spring 2021 (online, asynchronous)

Teaching Assistantships

Introduction to Psychology, University of Wisconsin-Madison, Fall 2018
Honors Calculus, University of Notre Dame, Spring 2017

Guest Lectures

Mathematics Development in Infancy and Early Childhood (video lecture)
Ed Psych 320 Child Development, University of Wisconsin-Madison, Fall 2020

Classic theories of learning: Piaget and Vygotsky

Ed Psych 331 Child & Adolescent Development, University of Wisconsin-Madison, Spring 2019

Generalized Magnitude System

Ed Psych 506 “Exploring Number Sense”, University of Wisconsin-Madison, Fall 2019

Pedagogical Training

Learning Environment and Pedagogics, UW Madison Teaching Academy, University of Wisconsin-Madison, Spring 2021

Inclusive Teaching Workshop, Delta Program in Research, Teaching, and Learning, University of Wisconsin-Madison, Fall 2018

DEPARTMENTAL SERVICE

Social Committee Chair, Educational Psychology Student Association (Fall 2018 – 2019)

Co-Founder, Math Intervention Journal Club for Graduate Students (Spring 2018-Fall 2018)

Mentor for full-time summer interns.

Responsibilities included assigning weekly research tasks, supervising and managing progress on independent research project, providing feedback on weekly writing assignments, and giving information and support about graduate school applications and life as a researcher. Developed lessons and homework assignments and taught a weekly Statistics Workshop in 2019, 2020, and 2021 to introduce a small group of interns to basic statistical concepts and programming in R.

- Summer 2021: **Primary mentor** for Valencia Griffin in UW-Madison’s IES-sponsored Interdisciplinary Research in Education Scholars (IRES) program.

- Summer 2020: **Co-mentor** for Steven Montalvo in UW-Madison's NSF-sponsored Psychology Research in Education Program (PREP).
- Summer 2019: **Primary mentor** for Natnael Schiferaw & Vaughan Collins in an internship funded by a James S. McDonnell Foundation grant to Dr. Percival Matthews.

Co-mentor for senior thesis students.

Advised 3 students on research design, analysis, and writing for independent senior thesis projects. Provided support to enable one mentee, Gemma Kirk, to earn the Hilldale Scholarship to fund participant payments for her senior thesis project.

Co-mentored undergraduate research presentation.

Advised 1 undergraduate student on writing and poster preparation skills for an undergraduate research symposium.

Support for graduate school and summer research applications.

Provided advice, editing, and other support to 3 UW-Madison students applying to graduate school, including Josie Hintzke (currently applying to Ph.D. programs in School Psychology), Vaughan Collins (M.S. in Social Work, University of Chicago), and Mary Gannon (M.S. in Speech Language Pathology, Marquette University). Additionally, wrote recommendation letters for summer research positions for two undergraduates who worked as research assistants on my projects.

Mentored 17 undergraduate research assistants.

From Fall 2017 to present, have supervised and managed a team of 1-4 undergraduate research assistants each semester. Provided training on reading research articles and developing independent research through weekly meetings.

PROFESSIONAL SERVICE

Reviewed manuscripts and conference submissions for:

- Developmental Psychology
- Mathematics Cognition and Learning Society Conference

OUTREACH & COMMUNITY ENGAGEMENT

Finding Math Everywhere!: Measurement and Patterning in 4K. (January 2021)

Designed and presented online professional development session for all 4K teachers in Madison Metropolitan School District. Supported by Madison Education Partnership.

Project SHORT Mentor (Fall 2020 to present)

Provided general advice and edited personal statement materials for four students from underrepresented groups who were applying to graduate school in Psychology. Project SHORT aims to combat inequalities in the graduate school admissions process by offering free high-quality mentorship.